

AMERICAN BEE JOURNAL

Vol. LXIX—No. 3

Hamilton, Illinois, March, 1929

Monthly, \$1.00 a Year

Sainfoin Next to the Clovers as a Honey Plant

By Louis Alfonsus, Milwaukee, Wis.

(Translated from the German MS. by George E. King, Oklahoma State College,
from manuscript prepared before the author's death)

THE esparcet here called sainfoin (*Onobrychis sativa* Lam.) is, next to the clovers, the best honey plant. It is indeed true that the sweet clover, since it blossoms much longer, finally produces more honey, but for the intensity of the honey-flow during its yield there is scarcely another plant which is able to yield during favorable weather such quantities of honey in such a short time as does the sainfoin. I found, during the first year of my residence in the U. S., that after the fruit bloom and the fading of the dandelions there occurs a long yield-pause which first terminates with the blossoming of the white clover.

Between these times there is but a feeble yield. This situation constrains me to point out to all of those beekeepers who in their pursuit have to record a yield-pause from the end of May until mid-June the great value of sainfoin, and to recommend its cultivation where the natural conditions are present for the growth of this plant. Sainfoin requires a limy soil. If this is not present, if the soil contains no lime, then one cannot raise it. The sainfoin, like all legumes, is further dependent for its good thrift upon soil bacteria. But one can now get this by purchase and inoculate the seed with it before planting. Then this plant will thrive.

A large number of European beekeepers are indebted to this for the greater part of their honey crop. Besides, for the farmer, the hay obtained from the sainfoin is a very excellent feed for milch cows, and on account of its high protein content it is eaten with predilection by growing cattle. On these grounds as a culture plant the sainfoin is much valued. Besides, there is still the circumstance that it can be success-

Sainfoin is one of the best of European honey plants and should do well in this country. It thrives on light, well-drained, lime soils, wherever clovers or alfalfa do well. It has been raised to some extent in Ontario and in trials in this country. In Le Gatinais, south of Paris, it is grown extensively for hay, and it is here that the best commercial apiaries of France are located. Seeds of sainfoin for trial plantings can be obtained in the United States.—Ed.

other species of clover. It has a great rooting power and is an enduring plant which can remain for years on the same field. It holds out the longest on warm deep soils, though it also thrives on dry, rocky ground if its roots can penetrate the soil. Sainfoin, like all legumes, is nitrogen fixing and enriches the soil with this important plant-nourishing substance in a very significant way. It is therefore a very good crop to precede the winter grains or corn. In order to get seed from it, a part of the field is allowed to stand and the ripened seed is harvested from this in July. Sainfoin blossoms toward the end of May or during the beginning of June. Thus at the time when only a slight honey forage is at hand in the central and northern states, this plant is very well suited to the beekeeper who will carry on its culture, to provide a good pasture for his bees.

In how far this has succeeded in Europe I will show. In order to introduce sainfoin into a region where it is not grown, certain beekeepers' associations bought sainfoin seed and made a present of it to the farmers. In all cases this was profitable.

Where there are sufficiently large fields planted to sainfoin, the honey yield is excellent. In the height of the sainfoin flow on the best days the scale colony has shown an increase in weight up to eighteen pounds. One of my acquaintances in Vienna, Mr. Oswald Muck, in the year 1925 moved thirty colonies into the sainfoin flow. On May 20 he brought his bees by train to it and on June 8 again returned them home. The average increase in weight for all of these colonies amounted to sixty-six pounds. Figures talk and are the best and surest



Sainfoin

fully raised in the coldest localities, because it is very resistant to frost and not easily winter killed like

proof for the profitableness of a thing, so I will cite an especially interesting case where the great worth of sainfoin as a honey plant was brought out by means of an experiment. Mr. Anton Schrom, of Eisgrub, in Moravia, who owns one hundred colonies of bees, wanted to introduce the culture of sainfoin into his neighborhood, and negotiated with a farmer to raise six acres of it. For every acre of sainfoin that he should raise, the farmer wanted ten pounds of honey, in addition to having the seed furnished without cost to him. To Mr. Schrom this appeared entirely too much, but under no circumstances would the farmer do it any cheaper. But as there lived still other beekeepers in the same locality, Mr. Schrom called a meeting of these, and they agreed to bear the high cost of this in common. In the spring of the year 1919 the farmer planted the sainfoin and it came into bloom in the spring of 1920.

Mr. Schrom had a colony set on scales. The first day on which the sainfoin yielded nectar brought an increase of three and one-half pounds; the second, one of five pounds, up to an increase of ten pounds in a day. Although only six acres were planted to sainfoin, four hundred colonies increased an average of thirty-six pounds during the nectar flow of about fourteen days. Consequently the six acres of sainfoin yielded 14,400 pounds of honey.

A more striking proof of the wealth of honey from the sainfoin cannot be given. The cost of the seed and of the honey supplied to the farmer were returned with compound interest.

In this country, where the bee forage is generally good, there has been no need felt of doing anything to increase the honey pasturage, while in old Europe, where the modern agricultural practices utilize every little patch of tillable soil for cultivation, the beekeepers and their organizations exert the utmost effort to procure a better bee pasture through the cultivation of nectariferous plants.

But it would really be worth while, here also, by the introduction of sainfoin, to create a main flow which would not only produce a quantity of pretty, bright clover honey, but would tremendously promote the colonies in their development.

One could secure comb honey much earlier because the bees are given a powerful start through the interpolation of the nectar flow. After eight days of sainfoin flow, the colonies are literally walled in with honey. The brood rearing has vastly increased and those colonies

backward in their development have become strong and productive.

But how shall we introduce sainfoin into a locality? To this the beekeepers of Austria give the best answer. They bargain with the farmers. In this they have to arrange for the putting of a large area in sainfoin. They simply make a gift of the seed to the farmer. An old saying runs thus: Cheapness stimulates trade.

If the seed is furnished gratis, there will most certainly be a farmer found who will sow it. The increased yield in honey alone and the magnificent development of the colonies will reimburse the cost with interest.

In my native country the culture of sainfoin is perpetually increasing because it is extraordinarily valuable in agriculture. It is an enduring plant, so that a beekeeper can obtain a good honey yield from it every spring for several years without having any new outlay. After three or four years the field may be plowed up and, without any manuring, one can make a good crop of winter wheat or corn. Thus this is a very great soil improver.

Barley or oats serve as a nurse crop. The grains protect the tender little plants from drying out. As soon as there is room after the grain is harvested, the plants are sufficiently established so that if it is not too dry they grow strong quickly. Sainfoin is very winter hard; it is employed in Austria for the planting of artificial meadows in the high lying valleys of the Tyrol, Styria and Carinthia, where there are long and severe winters which are no less severe than those in the northwestern states of America. Sainfoin succeeds also in Canada, where it is still colder than with us.

But an important thing is the inoculation of the seed. The sainfoin is dependent to a very great degree upon its specific soil bacteria, if it is to thrive well. Such bacteria are supplied in Austria by the Alliance Institute for Plant Protection. If the same is not obtainable in the U. S., one can procure the inoculating material from Austria. It is obtainable at the Bundesanstalt fuer Pflanzenschutz, Wien II, Trunnerstrasse 3. The forwarding of the inoculating material is done in closed air-tight boxes. Before sowing, the seeds are slightly moistened. The inoculating material is mixed with dry earth and then thoroughly mixed in with the seed by stirring it up. There adheres to each seed a lot of bacteria which play a very important role.

If, later on, one wishes to grow sainfoin on ground where this plant never has been, he merely needs to bring a wagon load of soil from the field where the plant formerly grew to the new place and distribute it

there in a thin layer before plowing the field.

Again, the inoculating material is so cheap one is able to get enough for an acre at about 50 cents, if he has to obtain it from Austria. But I believe that this is obtainable in the U. S., in which case it would cost perhaps only half as much. Be it again noted, too, that the inoculation of the seed is not unconditionally necessary. Where there is enough lime in the soil, the sainfoin will thrive well even without inoculation, but it will grow better and give a higher yield in hay from the very beginning if one uses inoculated seed.

A great disadvantage with sainfoin is that as a rule it produces but one cutting. Under favorable conditions, alfalfa can be mowed three to four times. This situation is met by sowing a little seed of a rye grass mixture with the sainfoin seed. But if a beekeeper raises the plant chiefly for the obtaining of honey, he can raise the sainfoin without the addition of grass.

There is scarcely a prettier sight than a blooming sainfoin field. It presents to the eye a carpet of the most delicate rose color. Scarcely any other forage plant presents a more beautiful picture. If one should mow sainfoin after its blossoms are out, its stems would be woody and the nutrition in the plant would have gone into the seed. Therefore, for use as feed, it must be mowed while in mid-bloom. But it is a different thing if the beekeeper lets the sainfoin stand for seed. Then the bees have a full flow lasting for more than three weeks, and the seed crop is certainly worth more than the hay.

In the universities, we have in the United States a series of teaching chanceryships in apiculture, but there are also a number of beekeepers who are interested in having a hitherto lacking full nectar flow to give their bees at the beginning of the month of June. These should test out practically my recommendation of this nectar plant most approved in Europe. If a university undertakes the demonstration as to what value sainfoin has for apiculture and is in a position to indicate the yield numerically in honey of, let us say, ten acres of sainfoin, then the beekeepers of the country will gladly dig down into their pockets to introduce sainfoin culture solely in order to come up to a higher yield of honey.

I have lived only three years in this country, which has become my second home, but I transplant the good from my old home land to this as well as I make the good that I find here accessible also to my fellow low countrymen, for the beekeepers of the whole world are friends. There

is no other vocational branch in which its devotees hold together in a like manner. We are not concerned with what political aim the individual beekeepers pursue or to which religion they belong. It is the plain beekeeper who stands nearer to us than all other people in this world.

During my first year's attendance at school the teacher spoke of the wild Bedouin people who travel through the deserts with their camels. When two such men meet, the first question after the customary salutation, "Salem aleikum" (peace be with you), is as to the well-being of the camels, which represent the greatest riches of the Bedouins. The next question is as to the family or the business.

Now we beekeepers are just the same. If we meet a friend somewhere, the first question is as to the bees. And at any meeting of beekeepers this constitutes the chief topic of conversation outside the meeting.

It will therefore be intelligible to you why I have the ambition to improve bee culture in my new home land also. Even if I am at the same time strange to many, I also have a multitude of friends. And of friends one can never have enough. The beekeepers of the whole world are united together by the little hexagon of the bee-cell.

A Great Collection of Beekeeping Literature

The Cornell Beekeeping Library has recently been materially increased in value by the acquisition of a large collection of German and Austrian beekeeping literature through the purchase of a private collection of 334 volumes. The funds from the endowment fund were not adequate for this purchase, but the unique methods by which this library has been made possible has attracted the attention of other officers of the university, so that funds were made available for this purchase. Included in the purchase is a run of thirty-six volumes of the Nordlinger Bienn-Zeitung, the oldest of the bee journals and in many ways one of the most valuable in existence. It contains many of the writings of Dzierzon, von Berlepsch, von Siebold and other former leaders in this field, and the journal is becoming so rare that long runs are almost impossible to obtain. This is now the largest run of this journal in America. Many other rare and valuable books are included, so that this collection, together with the German and Austrian literature already possessed by this library, makes this the outstanding collection of the German literature on the continent.

A large collection of Russian Literature is about ready for shipment and should be in the library within a few weeks. In several instances this library is claimed to contain the complete beekeeping literature of the country. Attention was called about two years ago to a great collection of French literature which was obtained through the generosity of various French societies.

The books and journals on beekeeping in this library are available to beekeepers anywhere if they will make application through their local public libraries. The only exceptions are a few books of unusual value, such as those formerly possessed by such outstanding leaders as Moses Quinby, which, because of their associations, cannot be mailed out. In almost all cases duplicate volumes of the same books are available for distribution.

Master Beekeepers or Master Husbands?

I dare say Mrs. Whelan was looking over Don's shoulder when he was making out that score card for choosing master Beekeepers. It looks more like a score card for choosing master (?) husbands, since home life is given a parity with operation and organization of apiary. Suppose we make it for beekeepers and use somewhat the following distribution of points:

Operation and organization of apiary	500
Business methods and ability	250
General apiary appearance and upkeep	150
Home life	50
Citizenship	50
	1000

Oscar Winchester.

INTERESTING PERSONALITIES

The BEEWARE Twins

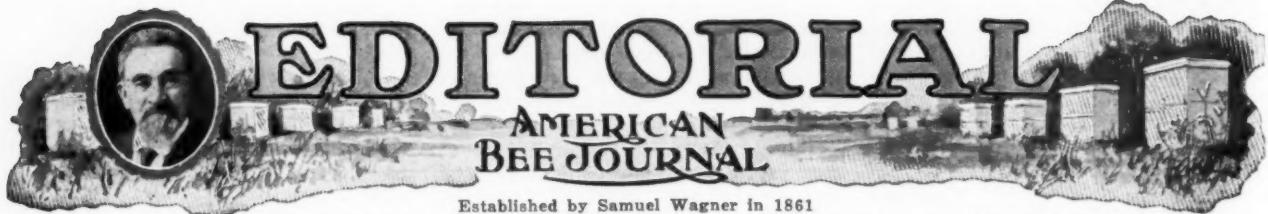


In the organization of the G. B. Lewis Company of Watertown, Wisconsin, there are two men with varied beekeeping experience. They are Kenneth Hawkins and E. W. "Tommy" Atkins, both of whom were at one time in the field service of the U. S. Department of Agriculture.

Hawkins was formerly a queen breeder in Illinois and later served as special agent in bee culture for the fifteen southern states in the extension work of the U. S. Department of Agriculture. He came to the Lewis organization as beekeeping specialist several years ago.

Atkins graduated from the beekeeping course in the Ontario College of Agriculture and after working as assistant in some of the large Ontario apiaries and getting some experience in inspection work he came to the states and also served Uncle Sam as an extension worker in the states of Missouri, Kansas, Nebraska, and Iowa. Next we find him doing research work in beekeeping at Iowa State College, where he remained until he took up his present work with the Lewis Company.

If you want any information about bees or beekeeping equipment, just ask the Beeware Twins.



The oldest Bee Journal in the English language. Published monthly at Hamilton, Illinois. Copyright 1929 by C. P. Dadant

Entered as second-class matter at the Postoffice at Hamilton, Illinois.
C. P. Dadant, Editor; Frank C. Pellett and G. H. Cale, Associate
Editors; Maurice G. Dadant, Business Manager.

SUBSCRIPTION RATES:

In the United States, Canada and Mexico, \$1.00 per year; three years, \$2.50. Other foreign countries, postage 25 cents extra per year. All subscriptions are stopped at expiration. Date of expiration is printed on wrapper.

The Sioux City, Iowa, Meetings

The meetings of the American Honey Institute, the Bee Industries Association of America, and the American Honey Producers' League at Sioux City, Iowa, on February 6, 7, 8, 9, 1929, mark, we think, a new era in the cooperation of all those interested in honey production and distribution. The one thing that made this meeting an outstanding one was the getting together of all of the different factors of the industry. There were beekeepers owning only a few colonies of bees up to representatives of the largest cooperative beekeepers' associations in the country; there were educators and officials of state and national institutions; there were individual packers of honey up to corporations representing millions of dollars, and there were small dealers in bee supplies up to representatives of the largest manufacturers in the world. All of them seemed intent on and interested in furthering the cause of popularizing honey and making it known as one of the best foods. Although honey production practices and disease control methods as well as other subjects held their places on the programs, the feeling of the entire four days seemed to be toward a consolidation of efforts along every line for the good of the entire industry.

This is a hopeful sign, for we have come to the point where nearly every food industry is organized and trying to find a place on the consumer's table for its particular products. Honey, being one of the most important natural foods, should find its place there, and it is only by cooperation of the kind shown at Sioux City extended on through the years, with consistent moral and financial support, that this objective can be realized.

Dr. Barnard, of the American Honey Institute, is ready and anxious to give help wherever it is possible for him to lend a hand. He is cooperating with the League and with every other agency where help is available. It must be remembered, however, that his time is precious and that he cannot be expected to attend beekeepers' meetings far and wide when there is so much very important work to do in the dissemination of information regarding honey. He desires the cooperation of every beekeeper and every organization in the industry and will, in turn, give all of the help that he can by the use of information that he has at hand and is now compiling through the help of his efficient secretary, Miss Fischer.

Let us all do what we can to keep the good work going so that at the end of a few years honey will be so well known that it will be sought after by the public,

who will have come to realize that, besides being a healthful and delicious sweet, it should form a part of every square meal.

Advertising Eggs Versus Advertising Honey

One of our readers who is an egg producer sends us an article, published in "Everybody's Poultry Magazine," entitled "Getting Folks to Eat More Eggs," by Harry R. Lewis.

This shows that the egg-producing people realize that, since all foods are advertised on a large scale, it behoves the poultry people to advertise also. It argues that if they can get each person in the U. S. to eat a dozen more eggs per year the result will be tremendous.

Thus, if the poultry people find it necessary and profitable to advertise eggs, we beekeepers must certainly find it profitable to advertise honey. They had a national "egg week" last year, which cost the National Poultry Council only a few thousand dollars, by being managed in each state by a state committee, headed by a state chairman, who caused to be printed in the press of the country thousands of notices, or over 100,000 inches of material, explaining the value of eggs as food.

Exhibits were staged in banks, hotels, store windows, featuring eggs in an attractive manner. These things are educational and of benefit to the people.

There is no reason why the beekeepers cannot do likewise. There is no product which may be advertised more readily than honey. The writer remembers when a friend of his, living in a large city, sold thousands of pounds of his honey right in his city office. When we asked him how he did it, he replied: "There is nothing easier to sell than honey. If I was offering tobacco, or liquor, some of my acquaintances would tell me that I ought to be ashamed to sell such stuff; but honey? Why, there is nothing better, easier to sell than honey, if you only know that it is pure and can recommend it to your friends. I never have any difficulty in selling it, when I simply tell my friends that this honey is produced in the country, by a friend of mine, that I know him and that I know his honey is pure honey from the bees."

So let us not get discouraged, but keep on advertising our product and remembering that there is nothing better, nothing healthier, nothing sweeter than honey. Let us put our heads together and help one another in the sale of honey.

Pollination by Bees

There is some progress among horticulturists and fruit growers in their consideration of the bee as a pollinizer. Not so very long ago some people held that the bees damaged the flowers in working upon them and removing the nectar. It took repeated experiments to prove that bees actually cause the fruit to set and that an orchard to which bees have little or no access produces very little fruit. Orchardists are going so far in favor of insect

pollinizers that they want hives of bees scattered in their orchards. There is no doubt now in the mind of educated fruit growers that bees are indispensable in an orchard. They need, therefore, not only to welcome them, but to protect them and to see to it that the sprays used to prevent codling moths and other insects be not used at any time during fruit bloom.

See to it that your neighbors be well informed of this and that they understand that the protection of bees by the orchardist is fully as important to him as it is to the owner of the apiary. Beekeeping and fruit growing belong together and are in no way injurious to each other.

Number 2 of volume 6 of the "Beekeeping News" of the New York State College of Agriculture has an interesting article on the above subject. It is published at Ithaca, New York.

Popular "Bunk"

Some people "get by with murder." A typical instance is an article in the magazine Popular Mechanics, which usually is pretty careful in the selection of its material. The writer of the article has nearly a full page explaining "honey reservoirs."

The article deals with nothing more nor less than the well-known Miller feeder for feeding bees. The writer explains and gives a diagram of the feeder and then goes on to say that it is a mighty fine thing for bees to store honey in and that he has had his colonies store quantities of honey in these receptacles or reservoirs. He further states that he is going to equip all of his hives with these receptacles so they can store honey more readily.

Of course, people will swallow it just like that fellow swallowed the big honey cave idea a few years ago at the League convention in Indianapolis. However, in that case, most of the hullabaloo was made as a joke by a number of the fellows who really knew, where in this instance the writer is going to spread misinformation in the minds of the innocent public who knows no better.

An Oversight

Our attention is called to the fact that, in giving the addresses of the magazines published on bees in the English language, on page 32 of our January number, we left out by oversight the two published in Ireland. They are "The Irish Bee Journal" and "The Beekeepers' Gazette," both published at Lough Rynn, Mohill, County Leitrim, Ireland.

If we have left out any others, we will be glad to have the matter called to our attention.

Progressive Apiculture in Spain

"La Colmena," a beekeepers' magazine of Madrid, announces that the Spanish Government has established fourteen schools of apiculture, with a small apiary of two Dadant hives and the necessary apparatus for taking care of bees, such as smoker, veil, etc., in each, in different parts of the kingdom. This is under the management of the Ministry of Public Education.

How Far North?

We read in the Scottish Beekeeper that they are succeeding with beekeeping in the Orkney Islands. These are at the fifty-ninth degree of latitude. This is at the same degree as the northern end of the Province of Quebec and the Gulf of Alaska.

Are Bees a Nuisance?

Every few days we receive a letter from some bee-keeper, living within the limits of a city, enquiring as to whether the city has a right to make an ordinance declaring the keeping of bees a nuisance, within its limits.

Not long ago a suit of this kind was tried at Madison, Wisconsin, and Mr. H. F. Wilson, called upon to testify, declared that any ordinance prohibiting the keeping of bees within the limits of the city is null and void, according to a decision of the Supreme Court. He is right.

The Supreme Courts have evidently recognized that bees are a useful insect, that the damage that they may do is accidental, and that the proper recourse to be had against the bees is to hold their owner responsible for any damage caused by them in any particular instance. Bees are indispensable in the fertilizing of the blossoms of fruits, apples, peaches, pears, etc. In addition, they furnish millions of pounds of honey, which would be lost otherwise.

Ignorance has a great deal to do with the opposition to bees by a part of the population. Many imagine that they destroy ripe fruit, although the fact is that they cannot puncture the skin of fruits and therefore eat only of fruits which have already been spoiled by birds or wasps. If bees could puncture the skin of fruits, they would without doubt puncture the corolla of such flowers as red clover which are too deep for them. Yet, they do not do so.

Occasionally a child will be stung by a bee, or if the apiary is mismanaged bees may sting grownups or horses. In some cases the apiary is too close to the public highway and should be removed to a greater distance. The owner must never forget that he is responsible for the actions of his bees and may be called upon to pay for any damage done by them. But he can no more be compelled to take his bees out of the limits of the town than he could be compelled to keep outside of the town a horse that may have kicked at some passer-by.

Our beekeepers have a very good opportunity to mollify those who become angry at their bees, simply by donating a comb of honey or a jar of it to the injured party. Do not let anyone become aggrieved at the behavior of your bees, but at the least suspicion of anger or displeasure let a little of the sweet be dispensed to the injured party, even if the injury is more imaginary than real. Let them know by experience that if your bees have poison at one end of their body, they have the best of sweets at the other end.

There are several different possibilities for displeasure. Sometimes some lady has made some preserves, leaving the kitchen door open. If there is no honey in the fields, your bees may come and annoy her. She will close the door to flies, in self-defense, but will sometimes think that you should control your bees and keep them out of her house. She may be shown that she is the one to do that. Again, your bees may get into the horse trough and annoy the horses when they come to drink. This may be entirely avoided if you furnish a watering place for the bees close to the house. Again, the housekeeper may be hanging her clothes to dry when the bees take their first flight in spring and they may soil the white linen. For all these things a little honey and a few kind words may smooth matters entirely.

Remember that one can catch more flies with honey than with vinegar. There is no need of allowing trouble to come.


AMERICAN HONEY INSTITUTE
 FOUNDED 1928
BEE INDUSTRIES ASSOCIATION OF AMERICA
 CHAMBER OF COMMERCE BUILDING
 INDIANAPOLIS
DR. H. E. BARNARD, PRESIDENT

The Annual Meeting at Sioux City

The American Honey Institute held its first annual meeting at Sioux City on February 6, 1929. The purpose of the meeting was to discuss and adopt the Constitution and By-Laws, to elect a board of officers for the ensuing year, and to hear the report of Dr. Barnard covering the work done from April 1, 1928, to February 6, 1929.

Dr. Barnard gave a very extensive report covering organization work, report of beekeepers' conventions, short courses, scientific and technical conventions attended, also of special conferences with food officials and officials of the Federal Government visited during his connection with the American Honey Institute. He gave a report regarding food law enforcement and his contact with state market commissioners and with home economic teachers, nutrition workers, etcetera.

Contact with editorial writers, columnists, and a report of honey articles for various magazines written by him and his work along the lines of cooperative food advertising with manufacturers and producers of other foods were mentioned. He also gave a short report on the proposition of honey research through the Department of Agriculture at Washington, D. C., together with a statement regarding the proposed appropriation for \$20,000 for carrying on this work. Besides this, Dr. Barnard gave an outline of his proposed future work.

Miss Malitta D. Fischer, so well known to beekeepers throughout the United States, has been engaged by the Institute as secretary to Dr. Barnard. Both Dr. Barnard and the Institute, as well as the beekeepers at large, can congratulate themselves that Miss Fischer has been chosen for this work. She herself says that her entire life has been really in preparation for this particular position, and there is no question but that the Institute and the beekeepers are the gainers in securing her services.

The date of the meeting of the American Honey Institute coming just previous to that of the American Honey Producers' League was a very fortunate arrangement, because it gave to both meetings an attendance of persons very important in the bee-

keeping industry.

In the report of the secretary-treasurer it was shown that the finances of the American Honey Institute are in good shape, but that it is going to be necessary to raise more funds for the coming season. For the past year the American Honey Institute has been financed by twenty individuals and firms, divided into the following classes and subscribing the following amounts:

Members of Bee Industries Association (manufacturers):

A. I. Root Co., Medina, O.	\$1,500
G. B. Lewis Co., Watertown, Wis.	1,000
Dadant & Sons, Hamilton, Ill.	1,000
F. W. Muth Co., Cincinnati, O.	500
August Lotz Co., Boyd, Wis.	250
Superior Honey Co., Ogden, Utah	250
A. H. Rusch & Son Co., Reeds-ville, Wis.	75
Honey dealers and brokers:	
C. H. W. Weber Co., Cincinnati, O.	500
J. G. Paton Co., 217 Broad way, New York City	500
Hamilton, Wallace & Bryant, Los Angeles, Calif.	250
H. F. Botsford Company, Carnegie, Pa.	50
Honey producers' associations organized for profit:	
Colorado Honey Prod. Ass'n, Denver, Colo.	\$ 250
Honey producers' associations not organized for profit:	
American Honey Prod. League, Laramie, Wyo.	\$ 250

Honey producers and queen breeders:

Jasper Knight, Haynesville, Ala.	\$ 100
C. O. Yost, Indianapolis, Ind.	1
Honey container manufacturers:	
American Can Co., 104 South Michigan Blvd., Chicago, Ill.	50
Continental Can Co., 4622 W. N. Ave., Chicago, Ill.	50
Hart Glass Co., Dunkirk, Ind.	50
Hazel-Atlas Glass Co., Wheeling, W. Va.	50
Illinois Glass Co., Alton, Ill.	50

The membership of the American Honey Institute is open to everyone, whether he be the smallest beekeeper or the largest manufacturer, and each has a voice in the direction of its affairs through the classification to which he belongs. Membership blanks will be gladly forwarded

to any applicant by the secretary-treasurer, and the memberships consist of the following:

Founder Membership—Founder members shall include any individual, firm or corporation contributing \$250 or more annually to the support of the Institute, the first subscription having been made prior to July 1, 1929.

Sustaining Membership—Sustaining members shall include any individual, firm or corporation making application acceptable to the Membership Committee and contributing to the Institute more than \$50 a year.

Contributing Membership—Contributing members shall include any individual, firm or corporation making application acceptable to the Membership Committee and contributing to the Institute less than \$50 a year.

Life Membership—Any individual may become a life member of the Institute upon application acceptable to the Membership Committee and payment of \$500.

In the case of a beekeeper desiring to join a beekeepers' organization, it was recommended by the Board of Directors of the American Honey Institute that such beekeepers be referred to either their state association or to the American Honey Producers' League. However, beekeepers that desire to assist in the work of the American Honey Institute will be very gladly welcomed under any of the memberships named above. The work of the Institute and that of the American Honey Producers' League is proceeding hand in hand and there should be no conflict in any way.

It is the hope of the Board of Directors of the Institute that beekeepers' associations all over the United States will lend a hand to the work of the American Honey Institute. Their moral help as well as their financial support is needed in the work of popularizing honey and making it better known throughout the country. No better work can be done by associations or progressive beekeepers than to help the Institute.

The Institute did not make this plea a year ago because it was the desire of the Board of Directors to first be able to show some important work done. Now that some work has been accomplished after more than nine months' efforts, its officers feel that they can go to the beekeeping public with the statement that the Institute is to be a lasting organization for the benefit of the entire beekeeping industry and that it deserves support.

A budget which provided for the employment of Dr. H. E. Barnard as

president of the American Honey Institute and Miss Malitta D. Fischer secretary to the president was adopted at this meeting. Mr. Kjosness indicated to the Board of Directors at their meeting that the Mountain States Association will join the Institute, paying \$250 for the past year's membership and subscribing same amount for the coming year.

Directors elected were:

Lewis Parks, F. W. Muth, H. H. Root, M. S. Stone, L. C. Dadant, to represent the Bee Industries Association of America.

R. B. Wilson, to represent honey producers' associations organized for profit.

Frank Rauchfuss, to represent honey producers' associations organized for profit.

A. W. B. Kjosness, to represent honey producers' associations organized not for profit.

R. S. Solinsky, to represent honey container manufacturers.

The following officers were elected: Lewis Parks, chairman; H. H. Root, vice-chairman; L. C. Dadant, secretary-treasurer.

Blanks for application for membership may be had from the secretary-treasurer, L. C. Dadant, Hamilton, Illinois, or Lewis Parks, chairman, Watertown, Wisconsin. Beekeepers when writing for information relative to the Institute or for questions regarding honey, advertising, etc., should address Dr. H. E. Barnard, Chamber of Commerce Bldg., Indianapolis, Indiana.

Honey Producers' Association, in a special interview.

Utah and southeastern Idaho crops were poor in the fall of 1928, due, according to A. W. Anderson, field agent in this territory, to a general lack of moisture.

In the southeastern part of Idaho, reports Mr. Kjosness, around Twin Falls and Boise, the honey crop was good. Montana bee conditions are just about normal. Oregon and Washington apiaries are rather poor, due to crop failure. An increase in honey is noted by the Mountain States Honey Producers' Association, however, due to an increase in membership rather than to an increase in the honey crop.

"The growth of honey raising in the western states is enormous," according to Mr. Kjosness. When we organized the Mountain States Honey Producers' Association in Laramie, in February, 1926, for example, only 15,000 bee colonies were represented. At the first meeting in Ogden, Utah, in June of 1927, the colonies represented in the group had grown to 22,000, and this number had increased to 55,000 a year ago.

"This year the association has grown to 89,000 colonies, and with the Western Washington Beekeepers' Association, which includes about 15,000 colonies, our number is over 100,000 colonies strong.

"Our membership of 165 has grown to be 400. This includes bee men of Utah, Idaho, Oregon, Washington, Wyoming, Montana, Minnesota and North Dakota groups. We control the largest flow of honey in this section.

"In 1928 we shipped seventy-five cars of honey to Germany, France, England and the Scandinavian countries; five cars to China, and sixty-five cars throughout the United States.

"Our policy at present is to sell honey on the basis of delivered prices, not at the price quoted here, f. o. b.

"The entire honey crop for the year 1928 has been sold—that is, with the exception of pickup stuff here and there." Glen Perrins.

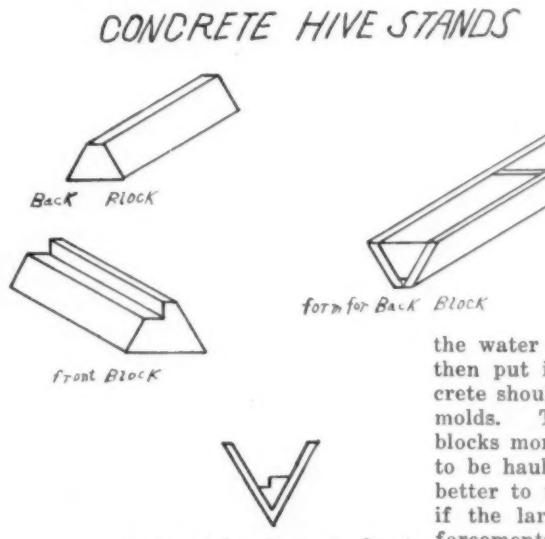
New Rates on Honey

The Mountain States Honey Producers' Association persuaded the railroads that it was necessary to reduce the rate on honey between Wyoming points and Seattle and Portland. The new rate was made \$1.35 for domestic purposes and \$1.05 for export. This will enable the growers to go after larger markets with the knowledge that it will be worth while. J. B. D.

Concrete Hive Stands

By J. C. Elliott

From the fact that there has been only one mention of hive stands in nine years' issues of the Bee Journal it would seem that hive stands are



The blocks are made from a mixture of about six parts sand and one part of Portland cement. Mix well, then make thoroughly wet, stirring

the water and material all together, then put into the molds. The concrete should be well tamped into the molds. The tamping makes the blocks more solid. If the blocks are to be hauled a great deal, it will be better to make the smaller ones; or if the larger ones are made, reinforcements should be used.

The smaller blocks will weigh about four pounds each, and one sack of cement will make enough of them for about thirty hives. Here a sack of cement costs 65 cents. If sand must also be bought, that should be added to the cost of the blocks.

If in doubt about any detail, talk to a local contractor, or write to any cement company. They will be glad to tell you how to use their product successfully.

Kansas.

Western Honey Crop

Bee and honey conditions in the western states at the opening of 1929 are better than they were a year ago, according to A. W. B. Kjosness, of Boise, Idaho, general manager of the Mountain States

not receiving their proper share of attention. Hive stands are more important than that. One might truthfully say that the bee industry rests on them.

Concrete, on account of its durability and its being so easily formed into any desired shape, is a very suitable material for hive stands.

One can make a sort of trough, divided into sections of the desired length, and use it for a form to make blocks that are fine to set hives on.

A good idea is to make the blocks about four inches long and five or six inches tall, then use four of them to support the hive. Or two triangular bars may be used, or one triangular bar and a front block as illustrated.

Lack of News of Russian Beekeeping Due to Language Difficulty

By W. J. Nolan

THAT Russian beekeeping literature before the World War was more or less a sealed book to American beekeepers is not to be wondered at in view of the fact that relatively few Americans then realized the value of a working knowledge of any language other than their own. During and since the World War hundreds of thousands of Americans have spent months in countries whose native tongues are different from their own. In this same period our contacts outside of the United States in all lines of human activity have increased to a degree entirely unexpected only a few years ago. Along with all of these happenings has necessarily come greater emphasis on the use of foreign languages by Americans regardless of their line of work. Beekeeping is no exception, as is evidenced by the fact that at the end of the World War not a single university in this country is reported as a subscriber to a foreign language bee journal, whereas we now have at least two university libraries in a vigorous campaign to receive as many of these journals as possible.

Russia offers much of interest to beekeepers in the United States, since it is the only country with sufficient variety of climatic conditions plus sufficient territory lying all together for the occurrence of the many special, regional problems found in our own country. With climatic conditions ranging from those favorable for reindeer to those favorable for cotton, with arid regions as well as those with sufficient rainfall, seasonal regional beekeeping problems similar to ours are to be expected there. Russia's wintering problems in the north are comparable to those in the northern part of our country and in Canada, while in the south, conditions are such as to give rise to the same difficulties in caring for bees during the inactive season as are found in our warmer states. Its varied climates and soils would seem to offer a wide range of flora as favorable conditions for nectar secretion as are found in this country. Taking only sweet clover as an example, it can scarcely be denied that large areas in Russian territory are so well suited to the production of this crop that Russia could easily become one of the leading countries of the world in the production of sweet clover honey if agricultural practice in those areas should lead to the growth of sweet

clover on large enough a scale. In short, Russia possesses potential possibilities for a development of beekeeping which can equal, if not surpass, that of any other country.

It may be recalled that a part of the old Russian Empire was incorporated into the new republics set up around the Baltic after the World War. These include Poland, Finland, Latvia, Estonia, Bessarabia, and Lithuania. What is now popularly known as Russia is composed of several republics, which collectively form the Union of Socialist Soviet Republics, commonly represented by the abbreviation U. S. S. R. The word "Russia" is no longer officially used as the name for the territory within the U. S. S. R.

The area of the U. S. S. R. is double that of the United States, while its natural resources are in many respects second to none. The vast extent of the U. S. S. R. gives rise to certain honey marketing problems comparable to some of our own. Thus one of its most important commercial producing sections, that in the Far East near Vladivostok, is located at one end of the country, while the bulk of the population which might form a natural market is located far away on the opposite side. We, too, have important commercial areas located far from their markets. In the Russian case just cited the possibility of cultivating the Chinese and Japanese markets comes at once to mind, and we shall see later that such an attempt is being made.

Beekeeping in Russia dates from the earliest times. Even Herodotus in the fifth century B. C. makes mention of the honey and wax production among the people north of the Caucasus. Beekeeping in Russia apparently continued to flourish from those early days down to the present. Thus it is reported (A. Kozachek, Kratkaya Encyclopedia Pchelovodstva, 1928,) that even at the beginning of the eighteenth century peasants had at times even as many as five hundred colonies of bees. These bees were commonly kept high up in the trunks of living trees in "hives" formed by vertical hollows in the trunks. The open side of these hollows was covered by a movable board with an opening through it sufficient to give the bees a passage in and out. Either natural hollows were adapted to this purpose or else hollows were gouged out by hand. Of course, with such "hives" it was nec-

essary to climb up the trunk to get to the bees or the honey. There were certain recognized property right or claims to such colonies. Often the owner established a legal right to them by placing his private mark on the tree, a procedure reminding us of the staking out of claims in earlier days in this country. One reason for the large quantity of bees in Russia when this type of beekeeping was in its heyday was the enormous consumption of liquors made from honey. At that time drinks from grains were unknown in Russia, and grape wines were to be had only from distant countries. Coupled with the enormous demand for honey was the demand for beeswax for candles in religious services.

Whether or not more honey was produced annually in Russia in the period just mentioned than in later years, bees continued to be kept in large quantities in Russia right up to the outbreak of the World War. Thus, according to the census of 1910 (N. T. Kulagin, Pooti Selskovo Khozyaistva, October, 1927), Russia at that time had 6,390,000 colonies of bees, the yearly amount of honey produced for sale being about 71,670,000 pounds, and of wax 8,500,000 pounds. Whatever the status of commercial beekeeping in Russia at the beginning of the World War, it is now becoming apparent that Russian commercial beekeeping is entering upon a new era. Concrete evidence confirming this idea is the fact that in 1926 Russia made its first bid since the World War for its share of the world's honey market, and has since then been waging a vigorous offensive with this end in view. More will be said about this later.

(The editor might add to this that the Langstroth-Dadant book has had four editions in Russia since 1892, and an edition of the Dadant System was also published. Lately they have also published an edition of the A B C of Root under the title of "Cyclopedia.")

Our Mistake Mr. Snodgrass

On page 76 of the February number is an article by Annie D. Betts on the circulatory system of the honeybee, where we used two illustrations, one to show a section of the worker bee with the heart and air passages, another a smaller section showing a part of the heart. These illustrations were taken from the "Anatomy and Physiology of the Honeybee," by R. E. Snodgrass, and published by McGraw-Hill Book Company. Many beekeepers have this book. They will find these illustrations on pages 180 and 188.

Mr. Snodgrass accepts our apology for the omission.

The Southern States Conference

Meeting at Baton Rouge on February 9 and 10, with fourteen states represented, the Southern States Conference unanimously recommended that the Bee Culture Laboratory, through its southern field station and in cooperation with southern shippers and northern receivers, carry on investigations and fix standards for combless packages of bees, nuclei and queenbees.

It was further recommended that all state officials and all bee journals cooperate; and some method be adopted whereby all advertisements of breeders furnishing standard packages be so marked, with an emblem or otherwise, as to leave no doubt or question in the mind of the reader of such advertisements.

On behalf of the Bee Culture Laboratory, Mr. James I. Hambleton accepted the recommendations and the southern field station is to commence investigations at once. It is hoped, by the 1930 season, to have a basis for standards on which to work. Probably the first work will be along the lines of package sizes, shapes, strength, method of crating, feeders and feed, etc., with further definitions to follow as fast as they are worked out.

There is no doubt, we believe, of the willingness of state authorities and of the bee journals to cooperate in the rapid acceptance and use of these standards, which have been so long needed. The American Bee Journal believes this step among the most important adopted by any association in recent times, and the Southern Conference is to be congratulated. In our opinion, it will make for better commerce in bee shipping, since it will re-establish confidence on the part of the buyer as well as set a standard for the seller. The express companies have assured full approval of such standards as a means of reducing losses on bee shipments.

Other resolutions adopted were: Endorsement of the American Honey Institute; an urgent appeal to the Arkansas Legislature that the present bee work in that state be continued under the supervision of the director of agriculture or the State Plant Board; petition to the U. S. Department of Agriculture that they do some definite investigational work toward relieving the depredations of the Argentine ant in the South.

Officers selected for the ensuing year were: W. E. Anderson, Baton Rouge, president; Jes Dalton, St. Francisville, secretary.

The 1930 meeting date was tentatively set as the Friday and Saturday previous to the Mardi Gras, and the

meeting place as Baton Rouge, so as to cooperate more closely with the southern bee field station.

At the suggestion of Mr. Hambleton, an effort will be made to hold a short course for beekeepers and queen breeders in connection with the meeting, with a second suggestion that, if possible, demonstrations in artificial insemination of queens by the Watson method and by the Quinn method be given.

At the session of the Louisiana State Beekeepers' meeting, held just previous to the Conference, report was made on the cooperative pool shipments of honey. Although re-

turns for all honey had not been received, it was apparent that the pool was a success. We hope later to give a more definite statement.

We have, as yet, said nothing of the numerous papers delivered at the meeting, the banquet, nor the visits and conferences, but the writer, who took occasion at the time of this meeting to make a two weeks' visit south, with his wife, to attend the meeting to make a two weeks' visit and incidentally see Mardi Gras, hopes to give a few first-hand impressions in one of our early issues. Not the least of these was the return home, started in warm, sunny, rose-blooming Louisiana and ending with the temperature at 4 below in western Illinois. M. G. Dadant.

Great Honor Shown Prominent Manitoba Beekeeper

J. D. McGregor, pioneer citizen of Manitoba, famous as a stock man and breeder of Angus cattle, has been appointed by the Dominion Government as lieutenant-governor of the Province of Manitoba, to succeed the late Honorable T. A. Burrows. He was sworn into office on Tuesday, January 30.

His honor is one of the outstanding beekeepers of the province, a member of the Provincial Beekeepers' Association, and active in furthering the interests of apiculture. His first public appearance, following his taking office, was to attend the annual meeting of the Manitoba Beekeepers' Association at the Royal

Alexandra Hotel. In speaking to the association, he said:

"Fellow beekeepers, I feel the honor has not been bestowed upon me as an individual, but upon agriculture, of which beekeeping is an important part. I've always been a farmer and shall always be a farmer. When I pass on, I hope there will still be Angus cattle bred and bees kept at Glencarnock."

The position of lieutenant-governor is the highest office in a Canadian province. He represents the king of England. In other words, he is the king of that province. He is not elected by the people, but receives his appointment from the Canadian Government.



Seated: J. D. McGregor, Lieutenant-Governor of Manitoba. Standing, left to right: Premier Bracken; Hon. W. J. Major, Attorney General; Hon. Dr. E. W. Montgomery, Minister of Health and Public Welfare; Hon. R. A. Hoey, Minister of Education; Hon. W. R. Clubb, Minister of Public Works; Hon. D. G. McKenzie, Provincial Secretary, and Hon. Albert Prefontaine, Minister of Agriculture.



Hershiser wax presses for rendering wax from combs. Note cheeses, pressure boards, and copper kettles for the wax

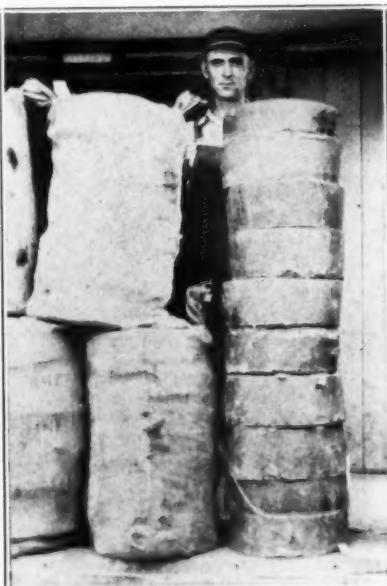
Practical Points on Saving Beeswax

By H. C. Dadant

Part 2

RENDERING old bee combs is quite the most difficult problem and most disagreeable of all the mussy work which a beekeeper may find it necessary to do in connection with beekeeping. The yield of beeswax from combs, however, is very profitable, and not a single bit of comb should be wasted. Several different methods have been practiced when securing beeswax from combs. They may be placed in two classes: 1. Where the beekeeper desires to save his frames and the wire in them, the combs are placed in a hot water tank and, after they are loosened from the wood, the frames are placed in another tank for boiling and sterilizing. Frames saved in this way should not be piled out of doors in the sun, as they warp badly. It is a question, however, whether the rusty wires are worth saving. In fact this method is not likely to yield as much wax as the one to be described in the next paragraph. The comb found floating in the hot water is dipped into a wax press so constructed that it will receive one cheese of the material wrapped in burlap sacking, and pressure is brought down immediately while the whole mass is quite hot. The press is so constructed with slats on the inside surface as to allow the wax freedom to run rapidly out of the cheese as it is being pressed. Pure beeswax is, of course, also found in

liquid form on top of the water in the tank and may be dipped out. A more convenient method, however, is to float the beeswax off through a



Wax in cakes and in sacks. Neat cakes handle easy and ship well

wide overflow spout by adding water to the tank at the bottom through a pipe connection.

2. What is believed to be a more efficient method of rendering old combs is to first break up the combs as much as possible and soak them

for a period of twenty-four to forty-eight hours in water without heating. Water at any temperature below the softening point of beeswax will be satisfactory. The comb should first be crushed as much as possible. The great advantage of this method is that the combs become well water soaked, all parts of the comb and cocoons filling with moisture. The comb is then ready to be boiled in a wax press under water. This arrangement causes the beeswax to melt throughout the comb, and as all spaces are filled with water, the beeswax having no place to locate or be absorbed runs readily out of the comb and will be found floating on top of the water. The best style of wax press made to carry out this procedure can be built at home at moderate expense. The whole arrangement is that of the old-time cider press with racks or slatted mats between cheeses, except that the pressing is done under boiling water. Great pressure is not needed. In case a capacity of about seventy-five pounds of beeswax per day from three hundred combs is desired, a wax press should be constructed about 20x20x20 inches. A press of smaller capacity, about 16x16x16 inches, would do well for the smaller beekeeper. There should be an opening in the bottom for drainage, and by installing a suitable valve and T with pipe up from this point, water may be conveniently supplied. Two

wood slatted mats are placed between three cheeses consisting of one-inch strips of wood nailed together with one-inch spaces between them. A metal mat is best for the bottom, as direct heat decays wood rapidly. On top is placed a strong slatted wood follower board made of four-inch boards with metal plate on top of it to receive the end of the pressing screw, and the machine is completed by the addition of a heavy screw and threaded socket such as a bench screw used in wood vice or soap press. The socket is, of course, anchored on a crossbar to the top of the press for proper operation of the screw. One of the best examples of this type machine is the Hershisier wax press. The water should be kept boiling well continuously and the screw turned down occasionally. Heavy pressing is not necessary, and in fact the screw should be turned up occasionally also in order to cause a washing in and out process throughout the cheeses while the water is being kept about the boiling point. An apparatus of this kind requires but little attention except to see that the water is kept hot and the screw turned occasionally. Cheeses are made by packing the comb compactly in burlap which has been spread over and down into a wood form 15x15x6 inches. A good, large, porous sack ripped open is very good for the purpose, being folded over and the flaps pinned together with nails. During the pressing and boiling they are finally reduced in thickness from six or eight inches down to one or two inches within the course of three or four hours. The remaining refuse may then be thrown away with a minimum of wax lost. The beeswax found on top of the tank is floated out through a wide spout about 6" x 1" by adding water through the supply pipe at the bottom.

Judging from the small number of wax presses sold, beekeepers are in many cases not saving near all the beeswax about their apiaries. In fact, so few machines are bought that they do not justify the cost of devoting space to them in a bee supply catalog. It is true, however, that many producers lacking proper equipment and time are shipping wax refuse to extraction plants in winter.

The weight of the material to be rendered, whether cappings, combs or refuse, has little to do with the amount of beeswax that may be expected from them. For instance, combs which contain considerable pollen and perhaps honey, or are heavy with the accumulation of years of cocoons, contain no more beeswax than comparatively new combs, and the beeswax is much more difficult to

remove when they are heavy and old. Generally, therefore, less beeswax per comb is secured in the case of heavy combs. Cappings may also be quite heavy with honey and contain many more times of honey in them, by weight, than the beeswax. Considerable honey may be wasted in this way. I have seen attempts to render cappings which were so heavily charged with honey that several changes of water were necessary to finally dissolve all the honey in the cappings and finally reduce the beeswax to a good, solid cake without being sticky.

Granting that full sheets of foundation have been used in the base of ten new combs, which represents about one and a half pounds of beeswax, one can expect that bees will add about 100 per cent of wax in completing the combs to full depth, or another one and a half pounds of beeswax, making a total of three pounds. It is hardly possible on the average, however, to secure three pounds of beeswax from ten Langstroth size brood combs, for in some cases the combs will not be of full size, there frequently being a space without comb at the lower corners and along the bottom bar. Then, too, it is not possible to expect to reclaim all the beeswax, particularly from old combs. For these reasons, about two and a half pounds of beeswax on the average may be expected from ten Langstroth size combs.

The old, simple method of rendering combs by placing them in a sack and submerging in boiling water with no other attention than occasionally poking, squeezing and turning the sack in order to aid in removal of some of the beeswax, is very in-

efficient. This method, however, will serve very well where combs may possibly be infected with disease and the beekeeper must sterilize them before making shipment to a good wax extraction plant. Most certainly no combs which have been occupied by diseased bees should be shipped without first sterilizing in boiling water and then drying before packing for shipment. In fact, combs from diseased bees had best be burned, for American foulbrood in particular will reappear at every possible opportunity. Stamping out this disease is much more important than the saving of beeswax. Combs containing honey should not be shipped under any consideration at any time. The best season of the year to transport combs is during the winter time, and the packing should be in good, double sacks.

Slumgum is a word used to name the refuse remaining after some beeswax has been rendered from combs. It may be more or less rich in beeswax and is usually dark brown or almost black in color. Unless the beekeeper is provided with a very good wax press and devotes proper care and time to the job, there will be enough available wax in the slumgum to more than pay for having it rendered properly by someone making a specialty of comb rendering.

It is important to save the beeswax in the form of drawn combs even in comb honey sections. E. M. Cole claims a colony started on a full super of bait sections harvests a full super of honey more than one with foundation only. Most of us know the importance of saving our good combs from damage and how much more valuable they are in that condi-



Caked beeswax sacked in double burlap, ready for shipment

tion for apiary use than a poor comb is for wax.

Contrary to the popular belief, the rendering of beeswax from propolis is not very valuable. The beekeeper should not confuse propolis with bits of wax from frame scrapings, which frequently contain almost pure beeswax as burr-combs do. In scraping frames it would be well if all propolis could be kept separate from the true beeswax scrapings. Propolis is readily recognized, especially in warm weather by the strong tendency of it to stick or adhere to the fingers and anything with which it comes in contact. Propolis is reported to contain 30 to 70 per cent of beeswax, but in these cases burr-combs were no doubt scraped from the frames with it. Propolis in the purest state as obtained from frame scrapings is found by two authorities to contain not over 10 to 20 per cent beeswax. It has a tendency to cause beeswax to stick to it so firmly that no method has been found whereby much beeswax could be rendered from it except by solvents. So well does it retain its hold on beeswax that some wax which otherwise would rise to the top of water will remain at the bottom with the propolis even when hot. Solvents such as turpentine, chloroform, ether, hot benzine, carbon bisulphide, carbon tetrachloride, and other liquids have been used with some success. The resulting beeswax, however, is changed to some extent. The cost of the liquid and process of reclaiming it by distillation, in addition to the cost of the outfit, has made the solvent process too expensive for practical use.

Following the idea of the solar wax extractor, which cannot be used except during the hot months of the year, Dr. C. C. Miller tried rendering combs in a hot oven during winter. This method has never been carried out to practical use, however, and the problem of holding the proper temperature would no doubt be difficult without injuring the beeswax. In fact, when wax is boiled with water it cannot be injured even though the boiling is continued for many hours. However, as soon as all the water has boiled away, heating should cease, for the temperature of the wax then rises above 212 degrees. Beeswax is liable to injury in a similar way as honey, and the temperature must be watched. While honey should not go beyond 140 to 150 degrees, beeswax will be injured very slowly at 250 degrees, and above 300 degrees rapidly. Beeswax will not boil without water, but scorch, smoke, and finally burn at high temperatures.

Tanks used in rendering beeswax are made preferably of copper, tin and glass. Galvanized iron will do quite well so long as water is boiled with the wax. Rough iron should not be used in any case, as it darkens or discolors beeswax rapidly. Smooth cast or wrought iron kettles will do with water in the wax. Galvanized iron tanks and tin cans for cooling as ordinarily used by beekeepers are satisfactory. The cooling cans are preferably made flaring in shape, to facilitate removal of the caked wax. Hot water poured on the inverted cold can will loosen the caked wax inside.

During apiary work, the beekeeper should be constantly on the lookout for undesirable combs. They may be removed when found, but if some good worker brood is present, place them next to the outside walls of the hive. In that location, brood is less likely to occur and they can be removed later. Another good place for such combs previous to removing them is above an excluder.

What may be considered a poor comb ready for the wax press? A piece of normal size drone-comb 3 15/16 inches square, a square decimeter, contains 521 cells. Not more than this number should be found in the entire brood nest in addition to what drone-cells may appear along the two or three rows of cells adjoining the bottom bar during a honey-flow. Combs containing a few square inches of drone-cells, but straight and complete, may be used for extracting supers and saved from the melting pot.

Don't allow moths to invade weak or queenless colonies. Keep the combs disinfected from moths in the honey house and apiary. The combs in dead colonies of spring should be cleaned, saved and fumigated for future use, if good. Moldy combs will result and be fit only for beeswax if they are not cleaned out and the combs allowed to dry. Junk all poor combs and scraps of wax for the wax press. Keep cappings entirely separate from old combs, as only very new comb will render nicely with cappings. Remove all the honey from cappings, thereby preventing a waste of honey and facilitating wax rendering.

Every scrap of material containing beeswax about the apiary should be saved. It is easily done and nearly clear profit.

The fact that it requires on the average ten pounds of honey consumed by bees to secrete a pound of beeswax, should be a reminder and incentive to all, of the value of saving the beeswax.

The Let-Alone Plan

By R. W. Blood

Outside of professionals, most people prefer to keep bees on the let-alone system. In my own case I have kept them that way; at least on a semi-let-alone plan. Having spent a year with one of the world's best known beekeepers, I'm a bit ashamed of the way I have to neglect my bees, but I am happy in the knowledge that I have gained. I had never kept bees in the South before and knew nothing of conditions.

At my old home in Boston, Georgia, I have two colonies; sort of an experiment station. One small swarm was hived September 28, 1926, in a Jumbo hive with nine Modified Dadant frames. The other was similarly hived about April 1, 1927. Whenever I visited home, up to July, 1927, both colonies were fed sugar syrup, because it was an extra dry season. After that they made a living, but did not draw comb in the supers.

April 1, 1927, I moved to Jacksonville, Florida, and only managed to get home every two to four months. About the time I left I gave both colonies a super full of Modified Dadant super frames, later giving one colony a second super. They were middling strong and were drawing comb well in the supers. Although no nectar showed, I knew they would be bringing it in before I saw them again, so at the last minute I put a third super over them.

The better colony was little if any stronger than the other; I think they had swarmed, but were three times as active as the other, and I was banking on their activity to leave the other colony at the pole.

The next time I got home, unexpectedly soon, I only had a short time with the bees. On looking at them I found my judgment confirmed. The better colony had drawn all combs, had some sealed frames, and nectar in plenty. Having no more supers set up, nor time to set them up, I took a super off the lazy colony, banged it on the ground to shake out the bees, and gave it to the other colony. I would have given them a fifth super if it had been available.

The lazy colony had not even drawn the foundation, although the gallberry in the woods less than three hundred yards away was in full bloom and the better colony was working on it.

Before I reached home next time, my mother, who also keeps bees on the let-alone plan, wrote me that both colonies had swarmed once, probably more, and they were hanging out. It was sundown when I got

back on my next visit and I immediately put inch blocks under the front of the hives. By dark all the bees were in. I should have taken off the galberry honey then, but did not have time to do any more than give them another super.

I was home again on Labor Day and took off two supers of fine honey from the best colony, leaving probably a super and a half. I didn't have time to see what I really was leaving, but made sure I left plenty. I put the wet supers back at dusk and gave the "sorry" colony a super of foundation, more as "sitting room," as I thought they needed it. Had the bees been properly supered and ventilated, I would have had double or more honey.

The sorry colony had only about four pounds of bees and, even with the crowding I had given them, had not drawn all the foundation in the brood nest, nor filled what they had drawn. Of course, they needed requeening, but that is about the biggest objection to the let-alone plan; you can't get the queens on short notice. If I could I would requeen in spring or summer and risk acceptance after I left. Now I would hesitate to requeen unless I could be with the bees later to be sure of acceptance.

The let-alone plan can never get the results that regular care does, but I have learned, at least in the South, that by putting on a minimum of two supers and ventilating by the first of April, then adding two or three more supers in June, the plan will work fairly satisfactorily. The Italian bees can be trusted to keep the moths out of the supers if the colonies are strong. The rub comes in when you can't arrange to have queens meet you at uncertain dates.

A Correction

In the January issue of American Bee Journal I notice that you state that Mr. James A. Stone was elected to honorary membership at the Illinois convention. This should read Mr. A. L. Kildow. I believe that Mr. Stone was so honored several years ago.

Again, "Master Farmer a Bee Man." Mr. N. E. France, a well known beekeeper, former state apriary inspector and manager of the National Beekeepers' Association for a number of years, of Platteville, Wisconsin, was so honored by the Wisconsin College of Agriculture a number of years ago, some time around 1923-1925, the exact date of which I am not sure.

V. G. Milum.

"Bootleg Honey"

We believe we now have a source from which honey, if it can be called that, is obtained that no other bee-keeper can duplicate, unless he is located on the Canadian border or some other point along the Mexican border.

Our apiaries are located along the Rio Grande River over a stretch of about sixty miles, ranging from 150 yards to six miles from the banks of the river. One yard in particular, and from which this new honey was obtained, is located only a few hundred yards from the new and last bridge that was built across the Rio Grande. The new town of Nueva Mercedes, built since the bridge has been built across the river, is just across from our apiary.

Last week as we were going through these bees one of the men found a frame of very white or clear honey and called the writer's attention to same. We have a hobby of keeping samples of peculiar honeys, either for color or flavor, and so decided to take this frame home and put it up in jars and add it to our collection. As we got home, this frame, a standard brood frame, had broken down, as the roads were rough and the weather rather cool, and this made the comb brittle, and it was a comb just drawn from foundation and was not as tough as an old comb would have been. We were able to save enough honey to fill two eight-ounce jars with extracted honey.

We tasted this honey and found it to have a very peculiar flavor and very much like the smell of an old whisky barrel, and also had a taste of wood of an old whisky barrel. We could not figure just what this honey was gathered from, and don't know for sure yet, but believe that the bees got a sweet substance from some old whisky barrel and stored it the same as they would honey. We have had several persons taste this honey and they all say the same. We did not tell them what we thought it tasted like or what we thought it was gathered from until they had expressed their opinion.

It may be possible that they got in some bootleggers mash pot, as we understand sugar is used in making beer and other drinks. It is lighter in color than sweet clover honey, but not quite as heavy in body, and has a slightly cloudy appearance. It seems as though it did not have very much alcohol in it or the bees would have become dizzy when sailing through the air and would have fallen

to the ground and stayed there until they got sober. Neither did we find any bees staggering around in the hive, that appeared to have gotten a little too much of this honey. Perhaps it does not affect them as it does a human, or else they have more sense and stop before getting too much. Bees are claimed to have more sense in certain ways than a human, anyway.

We are waiting to see how this honey will turn out in the future, as it may ferment and make a real "powerful" thing yet. If we can get enough of this honey and advertise it only one-tenth as much as the present honey is advertised, we believe we will have little trouble in disposing of it, and at much better price, too.

Rheumatism and Bee Stings

A matter which, for the honor of medicine and the possible relief it might bring to sufferers, ought to be made the subject of a careful research by some properly qualified person, is the effect of bee stings upon rheumatism. As far as personal observation goes, the present writer is inclined to think that there may be more in it than the "little tin gods" of orthodox medicine are willing to admit; but that the question is complicated by the fact that certain varieties of rheumatic affections are unaffected by stings. The contempt with which the results of the late Dr. Tertsch (or Terc, as his name is usually spelt, perhaps incorrectly, in the English bee press), of Marburg, Germany, have been treated does no credit to a profession which ought to consist of men of science, open to new ideas. The matter was raised by Herr Fr. Kretschy, of Vienna, at the *Wanderversammlung* of German-speaking beekeepers at Cologne in August last; and it is to be hoped that we have not heard the last of it, but that a proper investigation will be set on foot. Naturally, such an investigation is only possible to a medical man thoroughly conversant with rheumatism in all its forms, and either a beekeeper himself or assisted by a colleague who is.

A. D. B.

Death of Wisconsin Pioneer Beekeeper

We regret to announce the death of Herman Gloege, Monroe, Wisconsin, on January 4, 1929, at the age of 88. Mr. Gloege was one of the older Wisconsin pioneer beekeepers, who helped build up the Wisconsin association when it was in its infancy.



Top:
The grove of bearing chestnut trees pays well each year.



Center:
The E. A. Riehl home, overlooking the Mississippi River, near Alton, Illinois.



Bottom:
Miss Amelia Riehl and her sister, Emma, shelling chestnuts for the market.

Bees, Nuts and Flowers

A Combination that Insures Prosperity in a Location Where Honey Production as an Exclusive Business Is Not Dependable.

By Frank C. Pellett

MANY years ago there was a long discussion in the bee magazines as to the best things to be combined with bees. It was rather a fruitless discussion, since no two locations are alike and the tastes and inclinations of individuals differ widely. Some suggested "more bees," which might be very good advice in a locality where honey production can be followed safely on a large scale. However, one can do very well with a small apiary in many places that are poorly suited for beekeeping as an exclusive business. This applies to much of southern Illinois. An occasional season provides a large crop and the forage would in such seasons support large apiaries. But the crops are not dependable and in some seasons the bees in large apiaries would have to be fed. In such a neighborhood the beekeeper is wise to combine something which is more stable, with honey production as a source of his livelihood.

As many of our readers are situated in localities where it would be unwise to depend exclusively upon the bees, it may be of interest to tell how one family has combined bees with other open air activities to their advantage.

To horticulturists of the Middle West the name of E. A. Riehl is a familiar one. The Riehl farm is located on the Mississippi River a few miles above Alton, Illinois. The home overlooking the great river commands such a view as can be equalled in few places. In order to secure the slightly outlook, its owner sacrificed much in the quality of his land. A more unpromising farm from the standpoint of cultivation would be hard to find. In fact, it was freely predicted by friends that the Riehls would be unable to make a living on such a rockpile. The results obtained have, however, attracted very wide notice, and visitors

from far and near go to the Riehl farm for inspiration in the cultivation of several promising crops.

E. A. Riehl was the pioneer bee-keeper in his county. He was a friend of that other pioneer on the Mississippi, Charles Dadant, who died in 1902. Unlike Dadant, he did not depend so much upon his bees as upon some other crops. The bees were not only an important item in his source of income, but they served also in securing the pollination of the flowers, so necessary to large crops of fruits.

Riehl was an experimentalist. He must needs investigate a great variety of possibilities. He originated



Developed by the skill of the elder Riehl, such chestnuts now insure a living for the sisters

new fruits, he developed new varieties of nuts, and he grew many kinds of flowers. Unlike many men of that type, he made his place pay. The returns from his stony acres built a large house overlooking the river. His children were sent to college and the master enjoyed an occasional journey into the outside world. Such things as he wanted there was money to buy and he left a modest estate free from debt when he passed on.

It was my good fortune to meet him once. I remember him as a genial old gentleman with flowing beard. He had a wealth of information concerning fruits, nuts and flowers as well as bees. When he died there was general regret in the horticultural world, for his work was just beginning to be properly appreciated.

The Daughters Carry On

A few months ago, acting on the suggestion of a good friend of the Journal, I paid a visit to the Riehl farm. A few miles out of Alton, on the state highway leading to Jerseyville, there is a dirt road turning off toward the river. It is a winding road serving the needs of a few families in a quiet neighborhood. After driving perhaps a mile and a half, we came to its end, the E. A. Riehl farm. On the narrow ridge overlooking the river are specimens of many varieties of fine evergreen trees, which give the place its name of "Evergreen Heights," although the world knows it as the Riehl Farm. There is a precipitous slope toward the river which is unsuited to ordinary cultivation, but it is utilized in a wonderful grove of nut trees. During his lifetime the old master planted nut trees and removed the native growth surrounding. The result is one of the finest groves of chestnuts to be found in America.

He secured ordinary native chestnuts from the East and planted

them. Likewise he secured nuts of old world varieties of larger size, but inferior quality, and planted them also. Crossing the two, he secured new types of large size and good quality. These he propagated in large numbers and planted on the rough hillsides.

Hardly had we reached the bounds of the Riehl farm when we found a group of folks busily engaged in picking up chestnuts under the trees. In Illinois chestnuts are quite a novelty. Everywhere we find walnuts and hickory nuts, but one must drive a long way to find even a solitary chestnut tree, to say nothing of acres of them.

When Mr. Riehl died, three years ago, he left the old farm in the hands of his three daughters, Miss Amelia, Miss Julia, and Emma, who is the wife of George Gibbens. Mr. Gibbens welcomed us warmly and showed us many interesting things about this famous old farm.

The Bee Lady

Miss Amelia succeeds her father in the care of the bees. The apiary, as would be expected on such a farm, is of modest size, but with all good equipment. The bees are well cared for, and the crops are satisfactory. Some years ago Miss Amelia found herself very ill in a distant state. For a time her life hung in the balance



A big chestnut tree in all its glory

and her physician advised her to return home and live in the open air. From that time on she worked with her father, caring for the bees and flowers and grafting nut trees. So it came about that Miss Amelia is known as her father's successor, for when he died she was the one who knew most about the work which he had done. She was familiar with the varieties of nuts, the kinds of flowers and the care of the bees as neither of her sisters could be.

There are those living in the country who conduct their farms by factory methods, producing the greatest possible output of a special product and thus making large incomes. There are others who prefer to produce a little of many things and thus have for themselves the best that nature affords, selling enough to supply their needs. Which plan is best depends not only upon the inclination of the owner of the farm, but also upon conditions under which he works. The Riehl farm, because of its broken nature, is poorly adapted to large scale production of a specialized crop. Likewise the Riehl family seem to love nature, for her own sake, too much to be content with a close specialization.

Here we find acres of nuts, acres of flowers, a variety of fine fruits, a small flock of sheep, used to keep down the weeds and add a bit to the farm income by the sale of wool and mutton, and, of course, the bees. Things are so arranged that the work is well distributed through the year and there is something to sell at every season.

Once the nut trees were established, there was little to do with them except to harvest and sell the nuts. While chestnuts occupy more space than others, there are many trees of fine black walnuts and hickory nuts also. The nuts now add more than a thousand dollars yearly to the income from the place. The trees are large enough that sheep, pasturing underneath, are unable to damage the trees, while they keep down the grass and undergrowth and make it easy to pick up the fallen nuts.

Flowers Also

Mr. Riehl was a great lover of that queen of flowers, the peony. During his lifetime he planted many varieties and developed a sufficient field to sell cut flowers. His daughters make a specialty of this flower. With five acres devoted to peonies, they sell the flowers only at wholesale and ship them to Chicago for the Memorial Day trade. Three thousand dollars or more is annually realized from the sale of cut flowers. Miss Amelia stated that they do not care to grow a larger acreage, since it

would be impossible to cut and ship larger quantities without assistance.

Besides the peonies there are many iris, gladioli and roses, as well as dozens of other kinds of flowers. These they grow because they love them. Each of the ladies has some special favorite to which she gives her special care, but peonies only are grown for market. To make a satisfactory profit on cut flowers, for wholesale markets, it is necessary to have a considerable quantity of some special variety which is in constant demand. The Edulis Superba has proved the most satisfactory pink variety, except Mons Jules Elie, which is rather expensive for foundation stock. Felix Crousse sells best among the reds. In the past, Queen Victoria has been a good money maker, but the market demand no longer favors the whites, to the former extent.

And then the fruits! Mr. Riehl worked much with fruit and originated several new varieties, among them two new grapes which were introduced by the Stark Nursery Company. He was a regular attendant at the meetings of the Illinois horticultural societies, and in the older volumes will be found his comments on the culture and breeding of many varieties.

It would be hard to imagine a richer life than that lived by the folks on Evergreen Heights. With a great abundance of honey, fruits, nuts and flowers—the choicest of nature's gifts—there is food for the body as well as the soul. In their hours of leisure, looking out upon the great river they can see the steamers and barges that carry the world's commerce and get inspiration from the sheer beauty of the scene that stretches before them—miles upon miles of expanse of water bordered with green grass and leafy trees. At the time of my visit, the leaves were turned by a hint of frost and myriad shades of gold, red, russet and brown made a picture that would be the envy of the greatest artist that ever held a brush. Off the beaten path, they are undisturbed by the noises of passing cars, the dust or din of commerce, the smoke of factory chimneys or gases that foul the air. They are awakened by the songs of birds and lulled to rest by the stridulations of insect musicians. They are co-workers with the Creator and share with Him the making of new things which the world has never before seen. New varieties of nuts and fruits will bless the world with abundant fruitage long after those whose vision brought them forth have gone. While they stay, they live richly; when they go hence, they leave behind a heritage that enriches all mankind.

Small Amounts of Food, Completely Used, a Great Factor in Good Wintering

By Annie D. Betts

In his work at the Tula Experiment Station (Russia), Prof. F. Tuennin (in the September *Opitnaia Paseka*) reports the results of experiments on the influence of the quality of the winter stores on the overloading of the bees' digestive tract. This work was begun in 1924-5 and has been continued during ensuing winters; the results of the various seasons agree well together.

The method of investigation was to take samples of bees from the experimental colonies at regular intervals (of a fortnight or a month) and weigh the colon and its contents, thus obtaining the average weight of the colon in that colony or group of colonies. The samples were taken from the dead bees that fell from the combs; the drawbacks to this way of securing samples being much less than the disadvantage of disturbing the colonies, which the taking of live bees would have necessitated.

It was found that bees can endure, without ill effects, a loading of the colon corresponding to a weight of this organ and its contents of from 0.04016 to 0.04972, average 0.04337 grammes, or about 46 per cent of the bee's own weight. As soon as the colon weight rises above this point there is danger of dysentery, in the conditions of a central Russian winter. The worst case observed reached 0.0874 gm., or some 93 per cent of the bee's "empty" weight.

Groups of colonies were put into winter quarters in the fall (1925) with stores consisting of sugar syrup, half syrup and half honey, light honey, dark honey containing some honeydew, and some honey consisting mainly of honeydew (specially extracted and kept separate for the purpose). The bees did not like this last food and would hardly seal it. The results of the experiment were as follows:

Nature of food	"Dangerous" degree of loading of colon noted on
Sugar syrup	March 9, 1926
Syrup and honey	January 26, 1926
Light honey	December 29, 1925
Dark honey	November 30, 1925
Honeydew	October 30, 1925

Subsequent work in the two following winters fully confirmed the above. It was also shown that the presence of Nosema, resulting in more wasteful assimilation of the food taken, so that faeces accumulate more rapidly, causes the danger

point to be reached earlier than in healthy colonies.

It is pointed out that there are two factors concerned in the accumulation of faeces in the colons of bees. The less food they are obliged to con-

sume, and the more thoroughly they are able to assimilate it (so that very little waste matter remains to be excreted), the better are their chances of coming through the winter without dysentery or heavy mortality.

Sour or Fermenting Honey Presents a Problem

By Alfred H. Pering

The past season has been peculiar in that so much honey, both comb and extracted, tended to sour quickly. The honey was too watery and thin and the yeasts, which we now know

to be quite universally present in honey, were able to work quickly. Others had this same experience. Some may be so located that it happens often. Can you offer suggestions?

In removing section honey I noticed what appeared to be a very fine fuzz of a cream color on the cappings. The unsealed cells, where there were any, soon soured. The cappings cracked and leaked to such an extent that the honey ran to the bottom of the carton and soaked through. The longer, the worse. It became unsalable before I could get it on the market, and that disposed of to the local stores had to be removed and replaced to prevent ruining the local trade. Later, in extracting, I would find this self same peculiar fuzz on the newer drawn extracting combs. The old combs did not show the fuzz so much, especially where it appeared the bees had used second-hand wax for capping, or where combs appeared to be travel-stained. When uncapping, I found tiny bubbles and occasionally soured honey in these extracting combs, regardless of how long they had remained on the hives to ripen. Some of the supers showed leaky cells if left long enough above the bee escapes before taken to the extractor.

The sections removed from stores after becoming unsalable were replaced in supers and returned to the bees to be cleaned up and uncapped cells filled and sealed. This they did to a considerable extent, but not sufficiently to make further production of comb honey profitable if this trouble should continue. These sections had to remain on the hives to such an extent they were not so white and uniformly filled as they should have been. The cappings appeared to be thicker and stiffer, as though the bees had attempted to make the honey "stay put." I uncapped some of these sections that had remained a long period on the hives and did not show the fuzz, or cracks, or leaking, or sweating, yet the little tiny bubbles appeared in some of them.

I put the extracted honey in large containers. After settling, the air bubbles would come to the top; they would not burst and had to be skimmed off. When a lot of these air bubbles were skimmed off and placed in a deep enough vessel, the honey would drain off of them to the bottom of their container, and it appeared most of them would disappear or burst. Perhaps an inch thick would remain. This honey from the skimmings was slightly soured. The bulk of my extracted honey seems to have been all right.

Now, if this thing should continue, or if this souring grows worse, how to handle the situation is the problem. One of my problems here is to market honey that is so heavily charged with pollen grains as to become unpalatable and unsalable on account of the flavor given the honey (extracted) by the pollen grains. A quantity of this honey, not soured, accumulating from pollen-laden brood combs that are filled with honey on top of the pollen after removing to the supers from the brood chamber in Demareeing to prevent swarming (and bees swarm here in Florida—don't forget that). I had been told or read in the American Bee Journal at some distant date back that bees swarmed themselves to death in Florida. I remembered that when I came here I sought to prevent swarming by removing the brood and giving plenty of both brood room and super room. That plan works fairly well, but the result is pollen in just about every frame in the hive, brood chamber, supers and all, and the queen excluder has to be kept in constant use, if that method is practiced to any great extent.

So how to dispose of this pollen-laden extracted honey? The pollen remains moist in the cells, and if honey is stored in cells atop of the pollen it is easily thrown out of the cells by the extractor, because the

honey stored with it keeps it in comparatively a liquid state.

What to do with that pollen-laden honey? Feed it back to colonies with plenty of empty combs? That would cause swarming galore and brood rearing to no end, and short-lived queens. After studying the situation, I have decided to experiment to this extent: Try to turn it into beeswax. Beeswax brings a good price here from the citrus men, who graft and bud the orange and grapefruit trees, furnishing a very ready market for all I have thus far been able to produce. After what experience I have enjoyed here, I believe the production of beeswax alone can be made sufficiently profitable to engage in it. How would you do it? I will not attempt to answer my own question except to observe that queenless colonies do not swarm, nor do they convert honey fed to them into brood. Queenless colonies have a great propensity for building drone-comb, but what matters that when the comb is to be converted into beeswax? Could queenright colonies be made to draw full sheets of foundation, either brood or for shallow extracting, and sold at a profit? I do not contemplate ever embarking in the queen rearing and package business. I am too old for that; besides, I prefer to do all of my own work, which will not be so much.

Dade City, Florida.

(I hardly think that you will find it profitable to produce beeswax, for beeswax costs the bees probably an average of ten pounds or more of honey for each pound of wax. That would mean between 3 and 4 cents per pound for your honey.

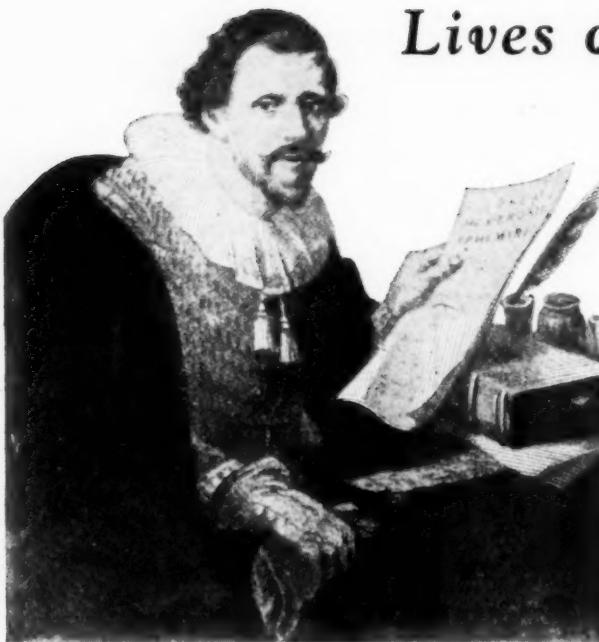
If honey is likely to ferment, it may be heated slightly to evaporate some of its surplus moisture. It is true that this does not make very good honey. Yet, if the process is carried on very carefully, the honey may remain very palatable. We have had similar trouble to the trouble you complain of, of honey foaming after extraction and also in the cells of the capped sections. It does not pay to produce comb honey under those conditions. But as this happens only in very moist seasons, I believe we can put up with this inconvenience. But we must certainly not sell honey in that condition.—Editor.)

Whey to Clean Jars

Some time ago I saw a request in the American Bee Journal on how to clean glass jars. If the party will use whey to clean them, and then rinse them in water, they will shine like new.

James Tyc, Minnesota.

Lives of Famous Beekeepers



JOHN SWAMMERDAM

By Kent L. Pellett

"With him, observation began to replace erudition . . ." — Sir William Jardine, in *The Naturalist's Library*.

Biography has the stage in popular reading. It comes from an eagerness for individual progress, a most hopeful tendency of today. "Lives of Famous Beekeepers" is being well prepared by a young biographer, son of our field editor, and will appear regularly as long as his patience lasts. The picture of Swammerdam is from a portrait by Rembrandt, photographed from Popular Science Monthly (1901) by J. G. Pratt and furnished by Dr. L. O. Howard.

JOHN SWAMMERDAM took his degree of Doctor of Medicine at the celebrated University of Leyden, in Holland, in the year 1667. He submitted as a thesis an essay on respiration. The essay was so original and many of its findings so contrary to commonly accepted beliefs that it did not win much repute for its author. With flippant ease several writers attempted to demolish the young physician's bold statements. One Lammersweerde directed at him a facetious essay entitled "An Expiration of Swammerdam's System of Respiration." But Lammersweerde's Expiration expired before did Swammerdam's Respiration. The latter, due to its many careful experiments and observations, finally took its place among valuable contributions to science.

This bold and strenuous young author of the essay on respiration already had attracted some attention. While working in the laboratory under the eminent surgeon, Van Horne, he had invented a method for preparing delicate visceral organs for demonstration by filling them with air, instead of wax, as had been the custom. While he was traveling in France for his health, his superior powers of observation had been recognized by a Parisian gentleman of influence and wealth, who had introduced him into the society of the leading scientists of the day. Swammerdam, once he had overcome his reserve and his awe of the august company, had astounded them by explaining in detail the internal structure of insects, of organs these scientists had considered so minute as to be forever beyond the scrutiny of man. When the Duke of Tuscany

had visited his home, he had traced for him the complete form of the butterfly within the caterpillar's body. Such close observation was bewildering to the people of his century.

For men had fallen out of the habit of using their senses in the getting of knowledge. After the passing of Aristotle, there were no more men of a mental vigor to keep bright the light of Greek culture and it had become dimmed. The clergy then had swept into ascendancy, and instead of reading from nature, they had held the ultimate truth to be emblazoned on the pages of a Book. With divine interpretation so readily obtained, there was no need for individual observation and experiment—which the priests and rulers frowned upon—and intellectual life had stagnated. People had grown to depend entirely on authority for their knowledge. Century after century they had remained circumscribed by the dictates of ancient tongues.

But early in the seventeenth century a few defiant spirits dared to open their eyes, rely boldly on their own observation and judgment, and declare new truths and the errors of the authorities. While the caterers of accepted learning stood aghast, Galileo made new charts for the heavens and formulated laws of mechanics that upset those of the ancients, and Harvey explored the circulatory system of the human body.

And among these hardy pioneers who refused the yoke of authority was the Dutch physician and naturalist, John Swammerdam, who raised a furore with his doctor's thesis on respiration. During the best years

of his life he studied the anatomy of insects; the accuracy of his observations and the complete detail of his drawings are a marvel to modern science. The modern classifications of entomology are based on his investigations of the metamorphoses of insects. He was the first to observe and describe blood corpuscles, in the blood of a frog, but as his manuscripts were not published until half a century after his death, this discovery was attributed to other eyes. He labored prodigiously to bring forth his exhaustive treatises on bees and mayflies and the manuscript of his *Biblia Naturæ*.

Yet Swammerdam completed all his tasks while still a young man. His death at forty-three ended a life of fevered impulse. Illness delayed the completion of his university education until his thirtieth year. An overpowering passion for understanding the anatomy of insects led him to neglect his profession all his life. So consuming did his quest become, that he allowed himself to become estranged from his father; dropped one by one the eminent friends the power of his young mind had drawn to him; and, while yet in his thirties, wrecked himself in mind and body. He spent his last seven years as a recluse, his mind lost in mysticism. So almost the whole of his arduous labors and his contributions to science were performed in the early years of his thirties.

During his able years he never relinquished entirely the intention of following his profession as a surgeon. Upon his graduation at Leyden he undertook experiments in anatomy for Van Horne, but he worked at them so constantly that

he took time to neither eat nor sleep properly, and was prostrated with the ague within a year. When he recovered, perhaps to distract himself from his medical duties, he began to delve into the structure of insects, with the result that he neglected his profession.

He had become interested in insects while a boy, through the insect collection of his father, which he had helped to arrange and preserve. With the wide Dutch commerce of that period bringing to Holland curios from the far lands of the globe, it was fashionable to make collections of various kinds; and the elder Swammerdam, a wealthy apothecary at Amsterdam, had an insect collection that was one of the notable exhibits of the city. John had begun a collection of his own, and through it he had become intimately acquainted with the six-legged folk.

Hermann Boerhaave, a noted physician of Leyden, who later saved Swammerdam's works from oblivion, in his biography of him, speaks of this youthful collecting: "He often spent both night and day searching for and examining such insects as he could find. . . . He ransacked the air, the land, and the water; fields, meadows, pastures, cornlands, downs, sandhills; rivers, ponds, wells, lakes, seas, and their shores and banks; trees, plants, ruins, caves . . . and even bog-houses, in order that he might make himself acquainted with insects. And it may be affirmed that in these particulars he discovered more facts and valuable information, even in his early youth, than all the known authors of preceding ages. . . ."

So unremitting was his application to the study of insects that, within two years after his degree at Leyden, he published a voluminous work, his "General History of Insects." A few years later he published a treatise on bees.

It was natural that these most complex of insects should hold a special interest for him, and it was on their anatomy that he did some of his most careful work. Boerhaave describes him in the process of dissecting and observing their bodies: "His daily labors began at six in the morning . . . and from that time till twelve he continued without interruption, all the while exposed in the open air to the scorching heat of the sun, bareheaded, for fear of interrupting the light, and his head in a manner dissolving into sweat under the irresistible ardors of that powerful luminary. And if he desisted at noon it was only because the strength of his eyes was too much weakened by the extraordinary afflux of light and the use of the micro-

scope to continue any longer upon such small objects.

"This fatigue our author submitted to for a whole month together, without any interruption, merely to examine . . . and describe the intestines of bees . . . during which time he spent whole days in making observations . . . and whole nights in registering his observations. . . ."

He completed his treatise on bees while under much distress of mind. His father, who supported him financially, complained that he was desultory in his efforts to advance in his profession, and threatened to stop his allowance if he did not turn his energies to more profitable account. John agreed—he himself probably did not realize the importance of his experiments—but he found so much delight in his work with insects that he delayed to give it up. When his father brought pressure to bear on him, he sought, without success, to sell his insect collection, which then comprised over three thousand species. He had friends who sought to relieve him of financial worries: the Duke of Tuscany offered him a place in his court at Florence. But Swammerdam declined, for he preferred a more independent, if more precarious, existence.

There was a strong element of reverence in his nature, a reverence fed by the daily wonders he uncovered in the lives of insects. Continually in his works he called attention to the hand of the Creator. He was so much struck by the beauty of the parts of the chamaeleon fly, and their adaptation to their functions, that he lamented his inability to examine them properly. "Oh, God," he exclaimed, "thy works infinitely surpass the reach of our feeble understandings; all that we actually know of them, or ever can know, is but a faint and lifeless shadow of thy adorable perfections. . . ." All his writings were tinged with such reflections, which the Journal of Science calls "more dyspeptic than philosophic, remarkable neither for depth of thought nor grace of expression."

Swammerdam's increasing ill health was accompanied by morbidness and spells of melancholy. He was repelled by the very things that had enthralled him; and he occupied himself with religious contemplation. He became a follower of Antoinette Bourguignon, the fanatic leader of a sect of mystics. So much did he allow her to influence him that he agreed not to publish anything without her permission.

He put aside his treatise on bees, persuaded that it was a worldly interest incompatible with his duty to God. Henceforth he held his sci-

tific pursuits in contempt, allowed his manuscripts to become scattered, and desired only to retire into seclusion. Attempts by friends to open scientific discussion with him or to recall his attention to his past works only provoked outbursts of anger. His father was irreconcilable to the new turn in his son's interests, and John now sought to take advantage of the Duke of Tuscany's hospitality at the Court of Florence, where he thought he might have leisure for devotion. But an old friend to whom Swammerdam made this proposal had recently become a Catholic, and enthusiastically hinted that if Swammerdam came to Florence his conversion would be approved. In great wrath Swammerdam turned his back on the Duke's hospitality.

His father's death shortly after, and John's resulting inheritance, relieved him from want; but the misery of his life was unabated, for he again fell ill with the ague.

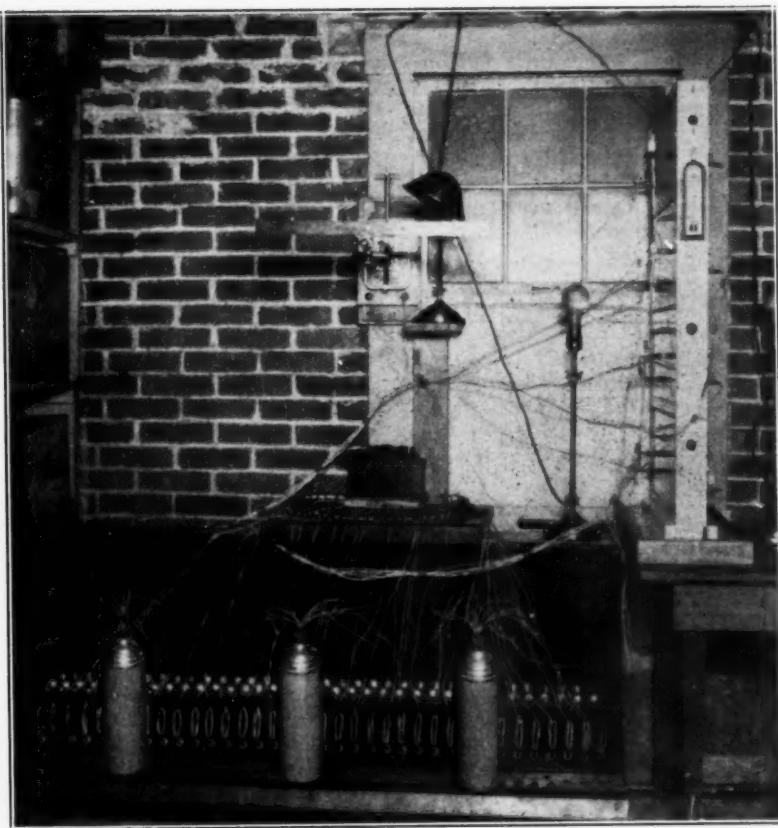
He spent his last days a recluse, diseased, unquiet in mind and body, his friends driven from him, his manuscripts forgotten, his ardent labors belittled by himself—truly a pitiable state for one of the greatest minds of the age.

His insect collection was sold in fragments after his death, and lost to the world. His manuscripts might have also been lost, so little were they appreciated by the people into whose possession they fell, except that Boerhaave, a half century later, realized their value, and, carefully gathering them together, published them under the title of "Biblia Naturae." So John Swammerdam's work was saved that later the blind naturalist of Geneva might take it up where his own hands, grown careless, had dropped it.

Cook is Supported as Florida Champion

Referring to the article entitled "C. C. Cook of La Belle, the Champion Apiarist," in which the claim is made to the world's championship, he having produced 260 pounds average from 600 colonies, I will state that, judging from my own personal experience since coming to Dade City, Florida, from Bloomington, Indiana, where I had either owned or handled bees for others for more than forty years, my observation and experience here lead me easily to believe the statement relative to Mr. Cook, and to state further that if Mr. Cook could keep a record of individual colonies he could show a much higher record than 260 pounds. Many things happen in Florida that seem well nigh unbelievable.

A. H. Pering.



Equipment used in the experiment related by Mr. Semans

Egg-Laying Habits of the Queen Honeybee

By Frank M. Semans, Ohio State University, Columbus, Ohio

THIS is a preliminary report on the egg-laying activities of the queen honeybee. The movements of the queen were observed in a four-frame vertical nucleus three times a day—8:00 a. m., 2:00 p. m. and 8:00 p. m.—in three consecutive ten-minute periods. These observations were carried on from the evening of May 10 to the afternoon of June 8, inclusive. The procedure followed over the last three weeks of the period included the recording of the number of eggs laid, the time required to lay each egg, the region in which each egg was laid, the time taken in inactivity, the number of workers that fed the queen, and the time taken in the feeding process. In addition, after the last ten-minute period in each thirty minutes of observation, the thermocouple readings for the temperatures in those regions in which the queen was present were recorded, and also the room and outside temperatures. A record was made of observations of a more general nature, including anything relating to the activity of the queen.

Mr. W. E. Dunham, in charge of apiculture at Ohio State University, suggested the problem and offered

considerable assistance in carrying on the work.

Procedure

A four-frame vertical nucleus was used for this experiment. The three lower frames of the nucleus contained dark drawn-out combs and the upper one sealed honey. The nucleus was placed on a stand in a dark room. (For complete apparatus see the plate.) The stand was adjacent to a window covered with beaverboard which was painted white on each side, since that color absorbs less heat than any other. The entrance to the nucleus, a small rectangular opening on the floor at one end, was connected with the outside of the building by a 2½-inch wooden tunnel which extended through the beaverboard.

A compound thermocouple for determining temperatures in various parts of each frame was used. It was so arranged that the three "warm" thermojunctions could be placed through the glass windows on both sides of each of the four frames. Each "warm" junction was inserted in a short glass tube sealed at one end, the other end of which was taped. The tube was pushed into a wooden plug which fitted tightly in

a hole cut in the window of the nucleus. The "warm" junction was so located that it would register as closely as possible the temperature that the queen's body was exposed to, when she walked over the combs.

Red mazda lamps, the wave lengths of which apparently produce no abnormal reactions in the honeybee, afforded illumination for the worker to make his observations.

A two-pound package of bees with an untested queen arrived from the South on May 4 and was transferred the following day. The queen was introduced immediately after the transferring process and was observed among the bees for the first time on May 8.

By the evening of May 18 a consistent method of observation was established. General observations were made the following three weeks and detailed observations from the evening of June 4 to the afternoon of June 8, inclusive.

Discussion

The Three-Week Period

In the three-week period the average amount of time taken to lay an egg was remarkably constant. Only twice was the time less than nine seconds, and only three times more than twelve. In the egg-laying process the queen quickly pushed the abdomen into the cell and then turned about 180 degrees to the right or the left. The time recorded for egg-laying consisted of the period between the instant the abdomen was pushed into the cell and the subsequent slight movement outward; immediately after this movement the body quivered slightly for a few seconds.

There was a slight correlation between the number of eggs laid and the total time taken in inactivity. The inactivity of the queen was longest during the periods of greatest egg-laying activity.

In the feeding activity the number of workers that participate is not significant, but, rather, the time that is devoted to food receiving. Only once in the three-week period did the queen appear to take honey from the cell. The amount of food that she received was somewhat evenly distributed over the entire period—even during the several days of lessened egg-laying activity (a period of much capped brood). During this period of several days, however, she wandered over the combs more than usual.

The record of observation shows that, in the main, the temperatures in the regions in which the queen laid were somewhat higher than in those that she passed through without laying. The outside and room temperatures apparently did not

influence the egg-laying rate, but they undoubtedly did determine the amount of energy expended by the workers in maintaining an egg-laying temperature.

The Four-Day Period

The detailed observations made over the four-day period show that the ideal egg-laying temperature ranged approximately from 85° F. to 93° F. Rarely, however, did the temperature of any region in the nucleus exceed 93° F., so it is impossible from these observations to determine the egg-laying rate above that level. Comparatively few eggs were laid in regions with temperatures below 85° F.

The queen laid the largest total number of eggs during the afternoon periods and the next largest number in the evening periods. The total number of cells inspected was well correlated with the degree of activity in egg-laying. Apparently there was no correlation between the number of eggs laid and the room temperature; this temperature was very constant throughout. The outside temperature may have been a limiting factor, as it was highest in the afternoon periods—the periods of greatest egg-laying activity. The regional temperatures were usually somewhat higher in the afternoon.

As in the three-week period, the queen devoted the largest amount of time to rest in the daily periods of most rapid egg-laying. Observations showed that she spent more time in inactivity immediately after laying than at any other time.

The extent of food receiving was fairly constant throughout. In this process a worker usually made the advances—by extending its proboscis toward that of the queen. When she responded, her proboscis came in contact with that of the worker and remained in that position until the feeding process was completed. Occasionally she made the advances.

Conclusions

The Three-Week Period

1. The queen devotes approximately nine to twelve seconds to the egg-laying process. This time is very constant.

2. During the period of much capped brood the queen lays fewer eggs than at any other time, but she is more active and consequently consumes as much food.

3. The temperatures in the regions in which the queen lays are in the main somewhat higher than the temperatures in those regions which she passes through without laying.

4. The temperature of the atmosphere immediately surrounding the nucleus apparently does not influence the rate of egg-laying.

The Four-Day Period

1. Eighty to ninety-three degrees Fahrenheit seems to be the most ideal range of temperature for egg-laying.

2. The queen is more active in egg-laying in the afternoon than in the morning and evening. Regional temperature appears to be the limiting factor.

3. The queen spends the largest amount of time in inactivity during the period of the most rapid egg-laying.

4. Food taking, apparently, is evenly distributed throughout the day.

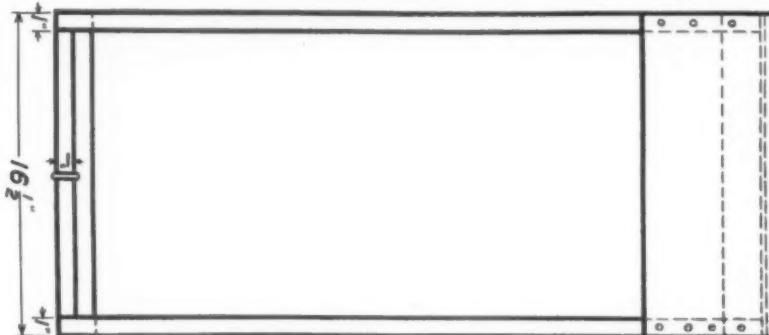
Good Advertising

We have recently seen a copy of an Indiana newspaper in which is advertised the product of Jesup's Honey Farm. A modest display is used, calling attention to "Jesup's

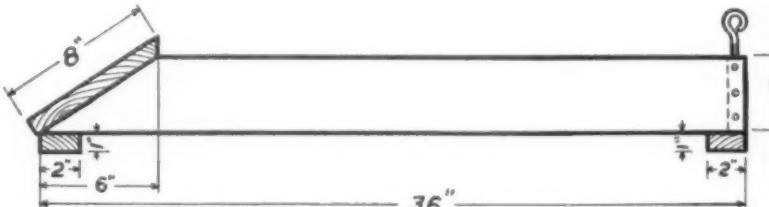
Pure Honey," with a list of stores where it is on sale.

It is interesting to note that the news columns of the paper carry an interesting story about Mr. Jesup and his bees. It is natural for editor's to be interested in what is going on locally, and when Mr. Jesup appeared to insert his advertising in the paper a lengthy conversation ensued. The result was that nearly a column of space was given over to telling about the Jesup Honey Farm and giving much interesting information about bees and honey. Newspapers cannot be expected to tell about things which have not been brought to their attention. The fellow who uses the advertising columns of the local paper is likely to get acquainted with the men about the office, and as a result the public is likely to learn more about his business than the things he has to say in his advertising.

Utility Scale Hive Stand



Top view of the hive stand



UTILITY HIVE STAND

Side view, showing hook and alighting board

Realizing the importance of scale hives and the expense of purchasing platform scales led me to devise the hive stand as illustrated in the accompanying diagram. By constructing so that the center of gravity of the hive comes approximately half way from the ring to the front support of the hive stand, the weight of the hive can be closely approximated by hooking a spring scale into the ring at the back of the stand and taking twice the scale reading as the weight of the hive.

Of course this method is not accurate enough in carrying on wintering and feeding experiments, but it is accurate enough to tell the ordinary beekeeper just how much honey his bees are putting away and when they will need more supers.

The average beekeeper will find these hive stands very easy to construct and that they can be constructed at a very small cost; and whether he plans to replace only one or all of his old stands, he would do well to try these stands.

J. E. Mowry, Wyoming.



A Garden for Health, Happiness and High Thinking

By Betty Bee

"I have a garden and it is mine; a place where I can plant cabbages between pansies, if I want to."

artificial sugars, and too little muscular activity. Before the days of autos we walked—walked miles, and enjoyed it, too. Then womenfolk did their own housework with its necessary reaching, stooping, pushing and pulling, thus bringing into use every muscle. Today electricity has taken even that away from many of us, and as a consequence between eating too much and exercising too little we bemoan our vanishing girlish "perfect 34" figures.

If when my friend finds herself a bit heavier than she wishes to be she would, in addition to letting up of foods of too high a caloric value and increasing her portions of green vegetables and ripe fruits, form the habit of vigorous daily exercise, bringing every lazy muscle into motion—games, swimming; long, brisk walks, climbing stairs, even washing woodwork and hanging curtains—anything that is healthy exercise—she would find her girlish figure returning. But I hear someone say, "Housework tires me." Of course it does. Any exercise tires, especially if there is not mental relaxation and happiness in doing it; but if we would keep well we must be willing to pay the price. The trouble with most of us is that we let our muscles get lazy and consequently our bodies are not in the best possible trim to resist disease. They do not keep up their youthful charm and prove a suitable dwelling place for our immortal souls.

I am perfectly willing to admit that housework for the most part is not conducive to sweet temper or high thinking; but if we would keep well and youthful, muscles must be kept in shape at whatever cost. To do this, I have found there is really nothing equal to a garden. Now I do not mean a family garden, but a wee bit of garden that is **your very own**. The family garden is splendid; but, tucked away by itself, dear sister beekeeper-in-law, each of us should have a little patch all our own. Dig in it, grub out the weeds, exercise the muscles between your shoulders and at the back of your neck; bend from the hips and waist and give your lazy abdominal muscles something to do. As a reducer, there is nothing like a garden, if you work in it properly. Sweat—it won't hurt you! Let the sun get to

you; it will store up sunshine for next fall and winter!

I have a garden. I love every inch of it. It is **mine**. If I prefer to plant my cabbages between my pansies that is my affair. To be sure, it usually starts with a grand flourish in the spring and as the busy days of beekeeping come on it may end in a fine patch of tall weeds in late autumn, but in it I have worked off more ill-temper and perplexities and **FAT** than anyone would imagine.

This summer I shall have petunias and catnip for the moths and butterflies and hummingbirds, and dear old-fashioned spider plant, so I can sit back and watch our bees; four-o'clocks and verbenas, larkspurs and lady slippers for old time's sake, and my annual bed of pansies, those fairies who gayly talk to me as I hoe and rake and **reduce**. Then I shall have parsley and chives for salads and soups, and to transplant for my winter window; early peas, the earliest I can get, and New Zealand spinach, which is not spinach at all, but just as delicious and well adapted to my style of gardening; golden carrots and bush Lima beans, yellow pear tomatoes, a few herbs, a sunflower or two, and zinnias, wherever there is any space. And on warm summer evenings we shall eat our suppers there, and **MY** new peas and spinach, wee carrots and Lima beans will taste far superior to any raised in the family garden. There we shall watch the last industrious bee lugger home his treasure from the spider plant, and the hummingbirds and moths, as they poise above the petunias, and I shall be storing up strength and vigor and sunshine for months to come, and growing slimmer and more muscular—and, let us hope, more of an inspiration and companion for John and the children. Yes, by all means, let us all have gardens.

But of course these vegetables from **MY** garden must be cooked in just the right way. Ordinary ways will not do. **They must be cooked with honey.** That is what completes their excellence. How does a garden supper of creamed peas, or well-buttered carrots with whole wheat bread and spinach sandwiches and pear tomato salad sound? Come, join us in my garden and we shall see.

Generally speaking, we prefer these early vegetables either creamed or buttered, for by either method the valuable mineral salts are retained, a most important factor both in wholesomeness and flavor. For the former the following cream sauce is to be recommended: Melt two tablespoons butter in a sauce pan, stir in two tablespoons flour, add slowly one cup milk, stir briskly

We all have our own pet conversational topic. Of course, John's is bees. He simply cannot talk five minutes without sort of "veering round" to that. I have flattered myself that there are quite a few subjects I can discuss with more or less intelligence or at least, thanks to years and years of marital training in listening to John, prove an interested listener, but really I guess I am beginning also to specialize. Only last week I overheard our eldest hope, who is reaching that point in manhood when in his mental classification "mother" is slowly being graduated from an overly energetic neck-washer and convenient cap-chaser into a real human being. He was saying, "Mother sure has the gift of gab when it comes to honey. Why, I'll bet she'll stop old St. Pete himself and ask him if he ever uses honey in his angel-foods and end by giving him her honey devil-cake recipe!" Maybe I might. One never knows.

Now I have a friend whose pet topic is "calories." If you meet her anywhere you will probably get first-hand information about just how many she has had that day. If you sit next to her at dinner, each food is neatly catalogued in caloric value. Now this careful consideration of food values is all right in moderation, but this woman is constantly going overweight. She forgets that proper weight and good health are not only questions of proper diet, but of proper exercise as well. This woman really takes no exercise at all. She gets in her car to go two blocks. She hires all of her housework done. She does not know what real exercise is, and that is quite as important as her foods.

Most of us as we grow older show a tendency to increased avoirdupois, which is another reason for our not feeling as full of pep and vigor as we did in our youth. This added stoutness comes, probably, from two causes—**too much food and too little exercise**—too many meats, starches,

to avoid lumps, and cook until it bubbles well, or for fifteen minutes, in a double boiler. Then add one-half teaspoon salt and one tablespoon honey.

For early peas, wee carrots and young Lima beans, prepare in usual way and cook until tender in barely enough water to cover, letting water gradually cook down to from one to one-half cup. Then pour into serving dish, add cream sauce, decorate with a bit of parsley or chopped chives and serve.

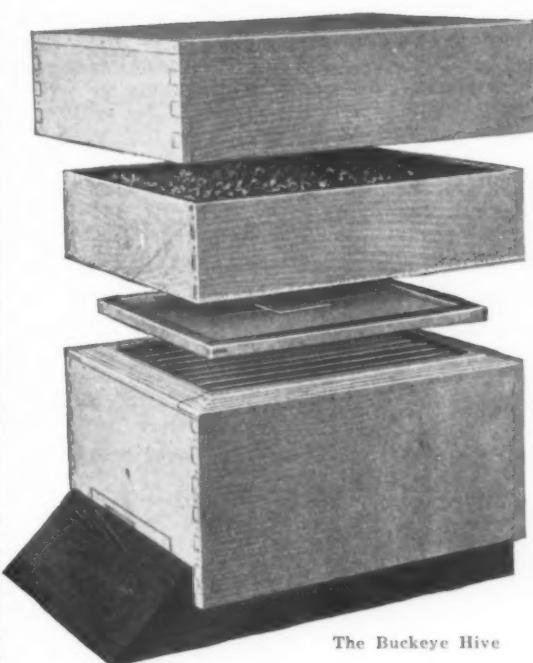
For creamed spinach, after washing thoroughly, shake lightly each handful as it is removed from the last water, place in tightly covered kettle, not adding any more water; stir to prevent burning. Cook not over ten minutes, remove from fire, cut finely with two knives. Then add spinach and its liquid to the cream sauce, stir slightly, place in serving dish and decorate with grated cheese, chopped chives or sliced pimento-olives.

For buttered vegetables, parboil as above and, instead of adding cream sauce, add one tablespoon of butter and one tablespoon honey; let simmer a few minutes. Serve on toast if preferred, or with thin slices of whole wheat bread and butter. Combinations of peas and carrots, carrots and beans or spinach and carrots are excellent either buttered or creamed.

Early vegetable salads—For our garden suppers we enjoy salads made of raw spinach chopped and combined with thinly sliced new carrots, parboiled new peas and new carrots, etc., served with the regulation mayonnaise of whipped cream, honey and lemon juice. As soon as the pear tomatoes and Lima beans come on, these are also combined or used alone with the mayonnaise. A dash of onion or a suggestion of garlic add to the varieties.

Of course, no garden supper is quite complete without sandwiches, and my early garden with its New Zealand spinach, so crisp and fresh, furnish a splendid variety. Whole wheat bread and butter sandwiches, with their filling of chipped spinach and lemon juice, chopped spinach and onion, spinach and shredded carrots, spinach and chives, chives and cream cheese, carrots and olives—in fact the variety is almost unlimited. With creamed or buttered vegetables, whole wheat bread sandwiches sweetened with honey, the mayonnaise or lemon juice, if used, also honey sweetened, a salad, with cool milk or a fruit-juice drink, one's garden supper is ideal for health, happiness and high thinking. Yes, by all means, a garden and one's very own vegetables.

WHAT THE BUCKEYE HIVE IS:



The Buckeye Hive

A Money
Maker

A Time
Saver

A Trouble
Killer

The Best
Winterer

The Best
Bee Home

1100 COLONIES IN BUCKEYE HIVES--WHY?

Mail us your name and address on the coupon below, and we will send you a leaflet telling why some big apiarists put their hundreds of colonies in Buckeye hives. It briefly tells the whole story of a better hive, less work and more honey and more profits.

The A. I. Root Company,
Medina, Ohio

Gentlemen: Please send me your free leaflet giving full information about the Buckeye hive and why you so strongly recommend it.

Name _____

Address _____

MAIL TODAY

YANCEY HUSTLERS IN PACKAGES OR NUCLEI

Record
Honey-makers

Every buyer of bees has a right to expect: Clean, pure-bred stock; young bees; no drones; hustling young queens of a good honey-making strain; generous overweight in every package; prompt delivery, in first-class condition; reasonable prices; kindly, courteous consideration at all times.

Think it over; we guarantee to please you on every deal; you to be the judge.

Price list and full particulars on request.

CANEY VALLEY APIARIES, Bay City, Texas
Yancey Brothers, Owners

Diemer's Three-Band Bright Italian Bees and Queens

Queens before June 15, \$1.00 each.
After June 15, 75 cents each

Tested, \$1.50 each

Package bees, prepaid to fourth zone:

3 pounds with queen, \$5.50

2 pounds with queen, \$5.00

After June 15, 50 cents less per package.

Orders filled within twenty-four hours. Free circular.

G. G. DIEMER, Liberty, Mo.

BOLENS
GARDEN TRACTOR

Does Garden Plowing, Harrowing, Seeding, Cultivating, Spraying and Lawn Mowing. Also mows hedges and other tall growth. Attachments instantly interchangeable. New improved Tools, Arched Axle, Tool Control, Power Turn, Snappy Powerful Motor, Pulley for Belt Work, and many other features. Has solved the problem of thousands of gardeners, florists, poultrymen, nurserymen and suburban farmers. Time Payment Plan. Write GILSON MFG CO., 825 Park St., Port Washington, Wis.

PACKAGE BEES

Pure three-banded Italians with select young laying queen of our own production

Safe arrival and satisfaction guaranteed

Express or mail shipment

Inspection certificate and all papers necessary to deliver at destination without delay

1000 colonies and 1200 nuclei to draw from

Sixteen years' experience as extensive shippers

Let us quote prices

W. D. ACHORD

Fitzpatrick, Ala.

The HODGSON RADIAL HONEY EXTRACTOR

with the three-speed drive, is the only radial extractor made which gives the operator full control of the speed at all times.

For circular, write to

S. P. HODGSON & SONS
New Westminster, British Columbia

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

BEES DAMAGE COMBS AFTER THEY ARE BUILT

This last summer I operated twenty-six colonies of bees, all in Modified Dadant hives, using wired foundation. Nearly all my combs, although built in the brood nest in a good honeyflow, have their lower corners unfilled with comb, and many of them have had the foundation cut away, a bee space above the bottom bars all the way across the frame. Now, I notice that super combs (6 1/2" M. D. extr.) built above an excluder are almost invariably perfect.

I have ordered seventy-five packages of bees to be delivered in April, and I want to get the best set of brood combs I possibly can. What is your advice and opinion on the subject?

1. Do you think it would be well to install these packages in the shallow supers and, when they are filled with comb, put a full-depth Modified Dadant body with frames of foundation above, later reversing the positions?

2. Would better combs be built if the queen be kept below until the combs are built, do you think?

3. What is the cause of the bees cutting away the corners and the bottoms of the combs?

4. After a comb is once built out completely full, will bees ever cut away built comb, or do they cut foundation only?

5. Supposing the bees, installed on foundation in supers first, as I have outlined, cut away the corners of the sheets of foundation, then, when this super is used later as a super and not a brood nest, will they fill out the corners again?

Inasmuch as I lack years of experience with the art of getting perfect combs built, and also inasmuch I as want to spare no trouble at the beginning to get the finest combs possible, I will greatly appreciate your advice.

MICHIGAN.

Answer.—The reason why the bees cut away the lower end of combs and the wax at the corners is that they have need of the wax at some other part of the hive more convenient for brood and honey. If the bees had a very heavy season, they would fill all the corners, and we have even seen them fill spaces on the underside of frames.

There is also some difference between races, and the Italian bees fill their hives more fully than the black bees.

Bear in mind that they do not waste any of the comb, but try to avoid building comb when there is little honey in the fields. There are times, however, when every colony has to build combs because the honey comes in faster than they can take care of it. At those times there is no cutting down of cells in the corners.

You will undoubtedly get combs filled better if they are above the brood, in the super. But it is not usually necessary to put the combs above the brood to get them filled properly. All you need is a good honey season.

CLEANING UP FOULBROOD BEFORE BUYING NEW BEES

Last year I had thirteen colonies in the spring and increased to twenty-eight, but American foulbrood got into them. I destroyed two hives and treated the others after uniting some of them, so now I am wintering only twenty colonies, but I think the most of them became affected late last fall, as they got to robbing out another hive that I did not know had American foulbrood. So I think I will have plenty of experience with it this coming year. But I am going after them as fast as it develops.

I did not know what foulbrood was last year, but I sure know what it is now. My

feathers flew for a while, but I am not ready to give up the business yet. Now I am thinking of buying a few more colonies this coming spring.

1. Do you think it would be safe to put them twenty or thirty rods from the diseased colonies? I could place them on a farm about two and a half miles away, but I do not know that they would see to them very well.

2. Will dipping a bee brush in coal oil disinfect it of American foulbrood? I used this brush in brushing bees off a good many foulbrood frames.

3. Are nuclei on combs allowed to be shipped into Illinois from another state?

ILLINOIS.

Answer.—1. It would be better not to buy any more bees until you have cured the diseased ones you have. But if you are very thorough and treat your colonies fully, it may be all right. Better bring them where you can watch them, but twenty rods or twenty feet make very little difference, as robber bees are sure to pilfer if an opportunity comes. I would recommend that you treat every one of your colonies, by removing the combs and putting them on foundation, in order to miss nothing. That is the way we did when we had to treat. The reason for this is the possibility of bees from the diseased colonies carrying some of their honey into the healthy ones at the time of treatment. The combs must be either burned up or treated by the Hutzelman method, after having allowed the brood to hatch. We prefer to recommend burning, saving only the bees, and singeing the hives with a gasoline torch.

2. We never tried dipping a brush in coal oil to disinfect it. But it must certainly be safe.

3. Nuclei on combs may be shipped into Illinois if accompanied by a certificate of inspection from the shipping point by an authorized inspector.

EARLY DIVISIONS—FEEDING CORN POLLEN IN SPRING

1. I have eleven stands of bees and I wish to increase them this spring by dividing each hive in half, by taking half of the bees and brood and putting them into a new hive and wish to know about what time to do this. Will the half that has no queen raise their own queens, or will I have to buy a new queen?

2. And if I divide these hives will I get as much honey as if I did not divide them? I have not examined the hives yet to see how they are doing, but they all seem to be all right and are alive; they were all in fine shape last fall and strong, with plenty of honey; in fact one hive I left three ten-frame hive bodies on and it was so heavy that when the ground became soft from the rain it began to sink into the ground and lean over and I had to pry it up and put wide boards under it. All the rest were wintered in two ten-frame hive bodies with worlds of honey. They did not swarm last spring and were very strong; but I noticed after our coldest weather, when it was 4 degrees below, they brought out a pile of bees that were dead.

3. What is the earliest I ought to open them up to see what condition they are in?

4. Another question I wish to ask is: How is the best way to feed the bees pollen, and how soon should I begin to feed it to them? I have seen articles in the Journal about feeding bees artificial pollen, so I have been experimenting on how to get the natural pollen and keep it through the winter and feed it to them, instead of a substitute. The first year I failed to keep it and it moulded, but this year I have succeeded in keeping pollen from corn and am enclosing a sample so you can see how it

looks. It is this pollen that I wish to feed the bees to see if it did any good feeding pollen at all or not. As I failed to keep it the first year, when I had gathered a pound and a half, I did not bother to gather so much the past season, as I did not know whether I would succeed or not. So will thank you to tell me what you think of this pollen and if it will be worth while feeding it to them.

ALABAMA.

Answer.—1. It is a poor plan to just divide your colonies in two, without first either rearing queen-cells or buying queens. To rear queen-cells, you should divide your best colony, removing the queen with one or two combs covered with bees and placing this division on the stand of another colony which you will put in a new location. The bees of the queenless colony will rear a number of queen-cells. Nine days after, count the queen-cells. You can make as many divisions as you have queen-cells, less one which you must leave. Then divide the colonies as you suggested and make sure which ones have queens. To those that have no queens, you will, the next day, give, to each, one of those queen-cells. In this way you will gain nine days on the hatching of your queens.

2. If you divide your colonies, you will, of course, get less honey than if you did not divide them, unless there is a crop in the late summer, after they have all become strong again, and unless you have helped them by giving them full sheets of comb foundation in the empty frames of your divisions. I do not know what your honey sources are, so cannot tell what you may or may not expect.

3. In answer to this I will give the same reply as to the former question. I do not know your locality, so do not know when you should examine them. But I rather suspect that they will be getting along very well in March and ought to be examined.

4. Regarding the feeding of pollen, I have never seen it done, but the pollen you sent me looks very good. I would mix it with a little honey, make a very thick dough. Try it. We used to feed our bees flour, just as Dzierzon, Langstroth and Quinby did. We fed hundreds of pounds in early spring. But our scientists say that it does not feed them, that they have to throw it away. It hardly looks reasonable to me, and I am inclined to believe that it does some good, though probably they have to use also some of the pollen stored in the combs from the previous season. At any rate, I have never seen this food thrown away, and, like A. I. Root, I am quite sure that some of our best colonies were those that took the most pollen made of flour.

SEALED HONEY FOR SPRING FEED.
PACKAGE BEES—RACES

1. I have ten colonies of bees in cellar which I hope will come out all right; have hive bodies and supers so as to run ten colonies for extracted honey and five for comb honey. In the spring of 1928 I planned to increase my colonies to the number of fifteen, but made a complete failure, as what I called the swarm failed to raise queen as I was told that they would do. The bees made some surplus honey and I have some over fifty frames nearly filled with honey, but they are not all quite filled or capped over. Will it be profitable to give those frames of honey back to the bees?

2. If I buy two-pound package bees, how many frames of sealed comb is it advisable to give each package of bees?

3. In the spring of 1926 I bought bee-ware and a neighbor hived swarms for me when his swarmed, but I got a very poor quality and very cross bees; they were the little black race. I often have to wear my bee veil when working in the garden.

4. Can you give me any information

PETTIT'S PACKAGE BEES SUIT US Why Not You!

In 1928 over three hundred packages of Pettit's Bees from Georgia were used to increase The Pettit Apriaries in Ontario. In spite of a bad late spring these apiaries produced a hundred thousand pounds of honey.

Last fall we killed over two hundred colonies to save requeening and wintering. Twice that many packages will be installed next spring. Do we believe in Pettit's Package Bees? They will do as well for you.

They are young bees shaken right off the brood during a honeyflow in April or May, whenever you want them. The queens are vigorous young Italians of best honey-getting stock. Having only hundreds, not thousands of colonies, every shipment has my personal attention. Overweight is given and satisfaction guaranteed.

1929 PRICES are down to meet the price of honey

Two-pound combless packages with young queen in each: 3-12, \$3.50 each; 15-48, \$3.25 each; 51 on up, \$3.00 each. For three-pound packages add one dollar, and for queenless packages deduct 80 cents from these prices.

MORLEY PETTIT, Valdosta, Georgia, U. S. A.

MUTH'S PRICES SAVE \$

Here are some of our prices from our 1929 catalog

GUARANTEED HIGHEST QUALITY

5 lb. boxes Medium Brood	69c per lb.
5 lb. boxes "Hercules" Non-Sag.	70c per lb.
5 lb. boxes Thin Surplus Fdn.	72c per lb.
5 10 fr. 1 story Metal Cover Hives	\$13.60
5 10 fr. 1 story Wood Cover Hives	10.95
500 No. 1 4 1/4 x 1 1/8 Sections	5.60
1 2 fr. No. 15 Rev. Honey Extractor	22.90

Send us a list of your requirements.

OUR CATALOG IS YOURS FOR THE ASKING

THE FRED W. MUTH CO.
CINCINNATI, OHIO

Beekeepers Take Notice

For thirty years we have specialized in the manufacture of Sections from the whitest selected Wisconsin basswood

We also manufacture hives, supers, frames and shipping cases

Write for our free illustrated catalog

Marshfield Manufacturing Company
Marshfield, Wisconsin

Quality and Service

Why not let quality and service determine the purchase of your bee supplies. We carry a large stock of Root Quality supplies, and can make prompt shipment at all times. Let us help you to be prepared for the honeyflow. Write for 1929 catalog.

— BEESWAX WANTED —

J. Nebel & Son Supply Co.

Montgomery Co., High Hill, Missouri

LAND OPENING

A New Line under construction in Montana opens a million acres of good wheat and stock country. Send for New Line book.

Minnesota, North Dakota and Montana offer best opportunity in two decades to secure good improved farms from banks, insurance and mortgage companies at a fraction of their real value. Send for lists. Improved farms for rent.

Washington, Oregon and Idaho have exceptional opportunities in fruit and poultry raising and dairying with mild climate and excellent scenic surroundings.

Write for Free Book on state you prefer.

Low Homeseekers Rates

E. C. LEEDY

Dept. J-8 Great Northern Ry.
St. Paul, Minnesota

CARNIOLANS

 are very gentle, very prolific at all times, build up rapidly during the spring, little inclined to rob, rarely affected with European foulbrood, and most excellent workers.

Twenty-two years' experience with Carniolans, Jan Strgar and M. Ambrizic imported and home-bred breeders. We have supplied Carniolans to many state agricultural colleges and experiment stations, to the provincial experiment stations and farms of Canada, and to the Japanese Government for breeding purposes. We have, probably, the finest Carniolans in the U. S. Ask for our free paper, "MERITS OF THE CARNIOLAN BEE." Queens ready in May, also a limited number of two-pound packages and eight-frame colonies.

ALBERT HANN
Glen Gardner, New Jersey

about the Carniolans, comparing them with the Italians, which are the most profitable here in Iowa?

Answer.—1. Combs of honey are certainly good to encourage the bees to breed in spring, for the main difficulty with the bees is to be supplied with enough food to reach the honey crop, and they must breed heavily if they are to succeed in harvesting a crop of honey.

2. The time at which you receive those packages of bees and the conditions of the season have a great deal to do with the requirements. If you receive them during the fruit bloom, they may do very well with but little feed. But sometimes there is a great space of time between the fruit bloom and the spring crop, which usually begins with white clover. So I would think each of your packages would need perhaps two combs of honey to bring them through in good shape. In some seasons, however, they might make enough out of fruit bloom to help them through without further help.

3. Common black bees are more cross than the Italian or the Carniolans, but if you handle them properly they may be rendered quite docile.

4. The Carniolan race is a very good race, when pure. But as they are almost of the same color as the common bees, it is difficult to recognize the mixed matings. For that reason we prefer the Italian bees, which have three yellow rings and may be kept pure more easily.

FALL DWINDLING AND CELLAR WINTERING

I wonder if you could help me out any on my wintering problem? I have been quite successful in everything but wintering. I have gotten good crops from very weak colonies, but I am a flop when it comes to wintering. The biggest trouble seems to be just the last month or so before I put them in the cellar. When I removed the supers about September 1, the hives would have a good population, everything looking fine; more bees than could get in, healthy brood and plenty of it. But when time comes to place them in the cellar many colonies have dwindled down to two frames of bees. The hives were exposed to the wind. Do you think that would be the cause of their dwindling?

This winter I placed the colonies on racks in the cellar without any bottoms, because there had always been so much water on the bottoms. I know an old beekeeper who has wintered his bees without bottom boards for years, and his bees are always in fine shape in spring.

Answer.—I am entirely unable to tell why your colonies should dwindle from September 1 to the time when you put them in the cellar. They must be disturbed by something during the first cold days. I see no other way to explain it.

As to putting them in the cellar without bottom board, we have done it ourselves. That is, we have put them in tiers with only the bottom hive supplied with a bottom board, the others all without bottom board. But we have hesitated to recommend it, although we know they keep drier than if they have bottom boards. But one must keep them at the right temperature and very quiet, else many of the bees will stray away and get lost. There is no doubt that they need plenty of ventilation in the cellar.

SPRING INCREASE

1. I am desirous of increasing the number of my colonies this spring. My colonies have never really been worked; the combs are crosswise. Would it be advisable to divide these colonies with new queens and foundation in the spring, thereby making two colonies of one?

2. Which would be the best to purchase, two-pound packages of bees with queens or two-pound packages with queens and two frames of brood and honey? What would

be the best time of delivery here in central Iowa?

IOWA.

Answer.—1. The dividing of colonies must depend entirely upon their condition in spring. If they are strong, it may be done perhaps at the time of fruit bloom, although it is usually advisable to divide them only at the time of the white clover harvest, in June. But the combs should also be transferred so as to be straight in the frames and manageable.

2. I would recommend two- or three-pound packages with queens, but without combs of brood. The success of pound packages in Manitoba and North Dakota indicates that one can succeed with them if they are bought in time. The time of delivery should be about the time of fruit bloom. But they should be well fed if reverses of weather come.

I would recommend that you buy a textbook and read it, to get the first principles, which you cannot get out of a magazine, for a magazine is simply intended to keep you posted after you get the first principles.

TWO QUEENS IN SPRING

1. Do you think two queens would build up a swarm faster than one, in the spring? That is, would it pay to divide a prosperous swarm in apple blossom time, or earlier, giving one-half a young queen, and uniting them, or the workers, later on?

2. How would you go at it to fill empty combs with thick sugar syrup? It seems to me that would be an ideal way to feed bees in the spring. The frames could be marked and used elsewhere if not used by the bees.

MICHIGAN.

Answer.—You might succeed if your colonies were exceedingly strong, but this happens very rarely at the time you suggest. We find that the best way is to encourage the queens to lay to the utmost of their ability. Have young queens in the fall and let it go at that. If you make divisions, it is best to let them remain divided for the harvest.

2. Pouring sugar syrup into combs has never been very successful, as some of the syrup is apt to run when the combs are put into hives and induce robbing. At any rate we have never had much success with this method. The only way to pour syrup into combs is to lay the combs flat on a smooth surface. You will find it hard work to get much of it in the cells.

STIMULATE FEEDING IN SPRING

I have a number of Modified Dadant colonies extra well supplied with stores, so full that the bees cluster on the lower part of the frames in order to have room to cluster. This is due to my feeding them liberally until quite late last fall.

1. In this condition what would be my best method of getting an extra colony from each of these colonies—that is, to double my number of colonies?

2. Should I feed pretty liberally in the early spring in order that each of the two colonies that I make from one colony should be able to raise an abundance of brood?

3. What precautions should I take to prevent swarming?

MISSOURI.

Answer.—If the bees consume considerable honey from the center combs during the winter, I would feed them often, but very slightly, at the breeding time of spring.

If they had a large quantity of honey left, that would be likely to leave them too little room for breeding, I would uncapping a little of it from time to time to urge them to consume it by breeding.

As to swarming prevention, see what we say in our books on the subject: Young queens, no drones reared, plenty of room for breeding, plenty of room for surplus, good shade and plenty of space for ventilation.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

Report of Apiary Inspectors' Meeting, Sioux City Iowa, February 8-9, 1929

Meeting called to order by Dr. R. L. Parker of Kansas. Mr. J. V. Ormond, of Arkansas, was appointed temporary secretary. Dr. Parker read letters from a majority of chief apiary inspectors of the United States endorsing the proposed organization.

The following states were represented: Arkansas, J. V. Ormond; Colorado, R. G. Richmond; Illinois, A. L. Kildow; Iowa, A. D. Worthington; Kansas, Dr. R. L. Parker; Missouri, Arthur Allen; Nebraska, L. M. Gates; North Dakota, J. A. Munro; Ohio, George DeMuth, representing C. A. Reese; Texas, T. W. Burleson, representing F. L. Thomas; Washington, D. C., W. J. Nolan; Wisconsin, C. D. Adams. Mr. C. L. Corkins expected to represent Wyoming, but was busy at another meeting.

Mr. R. G. Richmond moved that we adopt no constitution and by-laws at the present time, but instead prepare a "declaration of principles." This was passed unanimously. The chairman then appointed R. G. Richmond, of Colorado, and they later submitted the following report:

The name of the organization shall be the "Association of Apiary Inspectors of America." The object of the association shall be to further the exchange of information between the apiary inspectors and to foster in the states and provinces represented by its membership such uniform apiary inspection practices as may be deemed advisable.

After a short discussion a motion was made and passed that the membership of the organization consist of the officials in charge of the apiary inspection of the various states and provinces of America, and he, or his duly authorized representative, may sit and vote at all meetings of the association.

The committee on nomination of officers reported the following: Dr. R. L. Parker, Kansas, chairman; F. L. Todd, California, vice-chairman; C. D. Adams, Wisconsin, secretary. On motion these officers were declared elected to the respective offices.

A paper was read by Don B. Whelan, secretary of the Nebraska Beekeepers' Association, giving the

summary of a questionnaire sent by him to the chief apiary inspectors of the various states. C. D. Adams was asked to give a short talk on the "Area Cleanup Work in Wisconsin." The meeting then had an informal discussion on the subject of foulbrood control methods. A committee was appointed to draft a set of rules embodying conclusions arrived at as a result of the discussion.

Adjournment.

On the morning of February 9 the committee drafted the following resolution, which was later adopted unanimously by all inspectors present:

Report of the Association of Apiary Inspectors of America in regard to certain features which we are in favor of incorporating into apiary inspection laws:

Be it resolved: 1. That this association meet with the American Honey Producers' League in its annual convention. 2. That colonies diseased with American foulbrood should be burned upon their discovery by an inspector. 3. That we favor the "area cleanup" plan. 4. That we favor the certification of bees and used bee equipment in interstate and intrastate shipments. 5. That the bee culture press continue its policy of careful selection for publication of articles dealing with various phases of bee diseases. 6. That we urgently request that the U. S. Postoffice Department immediately impose regulations on the shipment of bees and bee supplies in conformity with those now imposed upon the express companies in compliance with the various state laws. 7. That we are opposed to the compulsory registration of apiary and collection of a special per colony tax for the state inspection inservice. 8. That we favor the collection of apiary statistics for the aid of this organization and the individual inspection services.

C. D. Adams, Chairman.
R. G. Richmond,
J. A. Munro.

Later, on the same date, these rules were read to the American Honey Producers' League meeting and approved by them without a dissenting vote.

The surprising and outstanding feature of the whole meeting was the absence of a dissenting voice on any

Golden Queens and Banded Bees

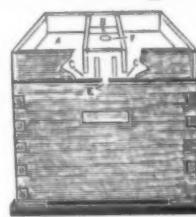
FOR 1929

Untested queens	\$1.00 each
Tested queens	\$1.50 each
Bees	\$1.50 per lb.
Nucleus	\$1.50 per frame

Bees inspected; free from disease
J. W. SHERMAN, VALDOSTA, GA.

Beekeepers Handy

3 in 1 Feeder



- A—Food Chambers
- B—Cover to Entrance Chamber
- C—Food Passage
- E—Bee Passage
- F—Bee Escape
- G—Cover to Escape when Feeding

SEND FOR DESCRIPTION AND PRICES

Patented and Manufactured by

J. E. WILL, Independence, Missouri

Book Your Orders Now

For Package Bees and Italian Queens

Two and Three Pound Packages

Write for prices No order too small or too large.

Nineteen years in business Safe arrival guaranteed Delivery begins in March.

R. E. LA BARRE
Box 1042 Tulare, California

OLD RELIABLE

Mondeng for Hives, Supers, Sections, Frames

and all other bee supplies at factory prices. Send in your list now for special quoting if you want to save money.

Charles Mondeng Company

159 Cedar Lake Road

Minneapolis, Minnesota

Clear H Crystal
HONEY JARS
will sell your honey



No panels to catch shadows which darken the color. Beautiful in Clarity and Pattern and Strength in Construction.

4 SIZES

Individual, Half Pound, One Pound and Two Pound. Accurate Graduation.

WRITE FOR SAMPLES AND PRICES

HAZEL-ATLAS GLASS CO.

WHEELING, W. VA.

WORLD'S · LARGEST · TUMBLER · MANUFACTURERS

BARGAINS IN BEES

On account of the fact that my law practice is requiring so much of my time, I have decided to get out of the bee business after this year. In order to find a purchaser for my string of apiaries, it will be necessary for me to reduce my stock on hand, and on that account I am offering package bees and nuclei this season at reduced prices.

I have three-band Italians only, use liquid feed, guarantee safe delivery, and furnish state certificate with each shipment. There has never been foulbrood of any kind in this portion of Georgia.

If you are in need of bees, write for special prices.

N. L. STAPLETON, Colquitt, Ga.

of the important subjects under discussion.

C. D. Adams, Secretary.

Meeting of the American Honey Producers' League, Sioux City, Iowa, Feb. 7-9, 1929

A very enthusiastic crowd gathered at Sioux City for the meeting of the fifty-eighth convention of our national beekeepers' organization. Although this was largely attended by beekeepers from the states of the Central West, there were representatives coming from as far west as Idaho and Utah and as far east as New York and Washington, D. C. The following states were represented in the attendance: Idaho, Utah, Wyoming, Colorado, Kansas, Nebraska, North Dakota, South Dakota, Minnesota, Iowa, Missouri, Arkansas, Texas, Wisconsin, Indiana, Illinois, Ohio, New York, Maryland, and Washington, D. C.

A very fine program had been arranged by President C. L. Corkins, ably assisted by J. V. Ormond, secretary-treasurer, from Little Rock, Arkansas. As the meeting was preceded by that of the American Honey Institute on February 6, many honey packers and officers of associations as well as bee supply manufacturers were in attendance. This served to bring together for discussion and cooperation practically all of the different interests of the beekeeping industry.

The educational program on February 7 and February 8 brought to the floor many of the important problems of the day, together with some excellent data regarding experiments being made at some of the various colleges. The lecture by Dr. Wallace Park on "Nectar to Honey" was very interesting, as he showed by means of charts just how the density of nectar varied according to atmospheric conditions and temperature. Because of lack of time, Dr. Park was able to only briefly touch on the practical value of his very wonderful experiments.

The lecture of Dr. Barnard on "Honey and Its Uses in the Home," on the evening of February 7, was very entertaining and instructive. Dr. Barnard held his audience for more than an hour, and as his lecture was broadcast over the radio it was no doubt enjoyed by many beekeepers who were unable to attend the convention. Miss Fischer followed Dr. Barnard's talk with a demonstration of the practical uses for honey in cooking, and Miss Barber, of the Kellogg Company, in her characteristic way showed how the Kellogg Company were urging the use of honey with their foods all over the North American continent.

The department at Washington, D. C., was very ably represented by W. J. Nolan, who gave a very interesting description of the work of Dr. Lloyd R. Watson in the artificial insemination of queenbees. He paid Dr. W. tson a tribute, saying that his work was no doubt the most important done in scientific research on bees since that of Dzierzon.

Dr. Watson was present and was then recognized by the assembly. He stated that his work was dedicated to the beekeepers of America and he was glad to feel that it was so much appreciated by them.

It is not very often that a meeting of this kind is favored by the representatives of two large honey marketing organizations. Mr. Frank Rauchfuss, of the Colorado Honey Producers' Association, and Mr. A. W. B. Kjosness, of the Mountain States Honey Producers' Association, both of whom added by their talks and their presence to the enthusiasm and importance of the meeting.

Prof. J. A. Munro and Dr. R. L. Parker gave very interesting and instructive talks on the subject of disease control and inspection campaigns, emphasizing the need of greater cooperation and education on the part of the beekeepers.

James Gwinn, in his talk on "Honey Marketing in Wisconsin," told very well how standardized packing of honey helped the market. It was noted with great interest that Wisconsin has practically cleaned up her supply of honey during the past winter. Our good friend George S. Demuth, of Gleanings in Bee Culture, gave a very interesting discussion regarding the new problems that are constantly arising with the producer on one hand and with marketing of the crop of honey on the other hand. L. C. Dadant gave information in regard to the organization and working of the American Honey Institute. The report of the American Honey Institute meeting is given elsewhere in this number.

Last, but not least, was an address by Mr. J. P. Thomy, of Preserves and Honey, Inc., of Brooklyn, New York, in which he discussed the "Principles and Practice in Honey Distribution." Mr. Thomy has had a very wide experience in the marketing of different foods, and in his opinion honey lends itself particularly well to the advertising problem as a food product. He made the plea that beekeepers should fix as soon as possible a standard price on a standard grade of honey and, if possible, adhere to that price so as to make it possible for a large bottling concern to be sure of a steady source of supply of honey.

(Continued on page 146)

Burlson's Package Bees

Italian Bees . . . \$1.00 per Pound
Young Italian Queens . . \$1.00 Each

For the past fifteen years I have shipped thousands of pounds of bees into Canada and Northern United States, with such success that my customers sell all the bees that I can produce, without much money being spent in advertising on my part.

I have fast train service to the North and a low express rate. I ship nothing but young bees and Spring Reared Select Untested Italian Queens. When bees are caged I add for each pound of bees sold one-fourth pound extra. No drones shipped. No disease; health certificate furnished; shipped without combs; fed in transit on sugar syrup, and they are GUARANTEED to please—you to be the judge.

Shipping date April 15 to May 25

Ten per cent books your order, balance to be paid for before bees are to be shipped.

Any kind of references furnished on request.

T. W. BURLESON, Waxahachie, Texas

ORDERS FOR THE SEASON 1929

Are now ready to be booked with 25% down

PLACE YOUR ORDER WITH

SOUTHERN BEE FARM

John St. Romain, Prop., Marksville, La.

REASONS WHY YOU SHOULD BUY FROM THE SOUTHERN BEE FARM

First. All bees are shipped on Dadant wired foundation, built in G. B. Lewis' frames.
 Second. The bees are shipped on date specified.

Third. The quality of bees that will gather honey. Highest grade of Italian bees and queens.

Fourth. All bees shipped are inspected and are free from disease. A health certificate is furnished with each shipment.

Fifth. All packages are shipped with queens already introduced—time saved.

Sixth. I am selling my bees cheap this season due to the low price of honey.

One 2-pound package with Queen, each	\$3.00
in 100 lots	2.75
One 3-pound package with Queen, each	4.00
in 100 lots	3.75
One 4-pound package with Queen, each	5.00
in 100 lots	4.50

Address to JOHN ST. ROMAIN, Marksville, La.

BOOKING ORDERS

for high-grade three-banded Italian bees and queens. 2-lb. package with select untested queen, \$4.50; discount on quantity. Select untested, \$1.00, \$10.00 per dozen; select tested queen, \$1.50. Inspector's certificate with each.

J. ALLEN, Catherine, Alabama

BEEWARE EXTRACTORS

American Cans and Pails, Glass Honey Jars, Wired Foundation Catalog for the asking

If you wish prompt service, write

B. F. SMITH, Jr., Fromberg, Montana

HIGH GRADE QUEENS

Write for our book "About Bees"

JAY SMITH

Route 3, Vincennes, Indiana

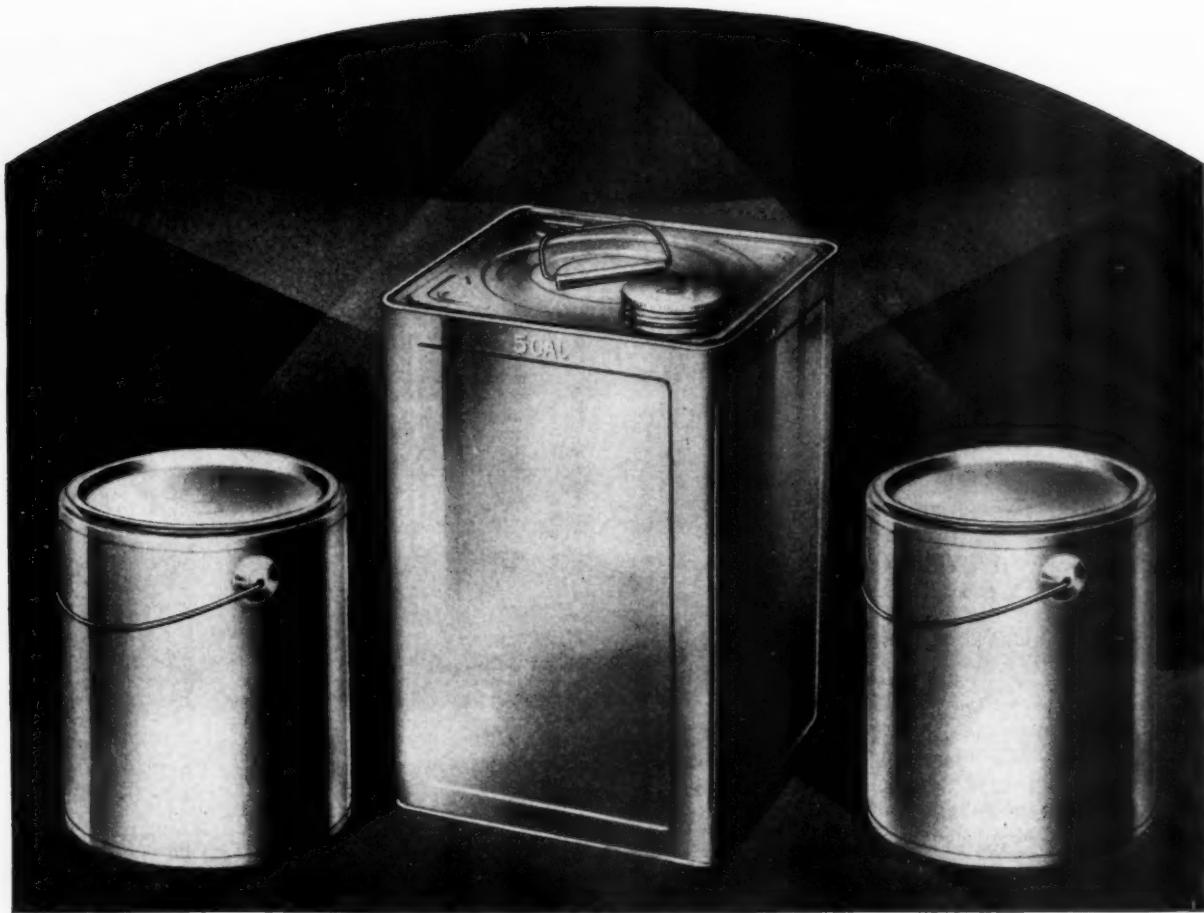
MACK'S PRICES

On Queens and Package Bees for 1929 will interest you. Write for them. Every sale a satisfied customer.

Herman McConnell

(The Bee and Honey Man)

Robinson, Route 2, Illinois



Continental Honey Containers

These clean, bright, tight cans will help you sell more honey. They make a strong appeal to your customers and assure the Honey reaching them in excellent condition.

Made in several styles and sizes to meet your needs. Complete information, prices, terms or samples may be secured through any of the distributors listed below or any of our offices.

THESE DISTRIBUTORS ARE READY TO SERVE YOU:

The Brock Store
Decatur, Ind.

A. G. Woodman Co.
Grand Rapids, Mich.

Carl F. Buck
Walla Walla, Wash.

Mountain States Honey
Prod. Ass'n.
Boise, Idaho

Colorado Honey
Producers Ass'n
Denver, Colorado

Lone Star Bee
Supply Co.
San Antonio, Tex.

Superior Honey Co.
Los Angeles, Calif.
Seattle, Wash.

Dadant & Sons
Hamilton, Ill.

G. B. Lewis Co.
Watertown, Wis.
Albany, N. Y.

Sioux City, Ia.
Lynchburg, Va.
Texarkana

J. W. Reid
Uvalde, Tex.

Burrows Hdwe. Co.
Beeville, Tex.

Standard Lumber Co.
Winona, Minn.

Magill & Co.
Fargo, N. Dak.

Sioux Honey Ass'n
Sioux City, Ia.

North Dakota Bee
Supply Co.
Moorhead, Minn.

A. I. Root Co. of Iowa
Council Bluffs, Ia.

A. I. Root Company
St. Paul, Minn.
Chicago, Ill.
San Antonio, Tex.

The Schultz Honey Co.
Ripon, Wis.

Fred W. Muth Co.
Cincinnati, Ohio

CONTINENTAL CAN COMPANY, INC.

4622 West North Avenue, Chicago, Ill.

DETROIT

JERSEY CITY

LOS ANGELES

E. ST. LOUIS

CINCINNATI

Crop and Market Report

Compiled by M. G. Dadant

Honey on hand. As compared to a year ago, there is much less honey reported on hand the country over for the same period. The only states reporting any honey left in hands of producers really worth mentioning are the southern and southeastern states, where reporters tell us there is anywhere from 10 to 70 per cent of the 1928 crop still unsold. As most of this is light amber to amber honey, it must find a market locally to a large extent or be sold for baking or other manufacturing purposes. Throughout the Middle West, in the states of Indiana, Ohio, Illinois, Iowa, Missouri, Kansas, and Nebraska, practically the only honey unsold is that harvested in the fall of the year, which for the most part was of inferior quality. No reports from these states show any of the 1927 crop left.

The northern states of Michigan, Minnesota, and Wisconsin have approximately 15 per cent of the honey left on hand. The intermountain states, including the Dakotas, show honey well in hand by the producers' organizations. Texas reports all the way from 25 per cent to all sold, showing that the Lone Star State is consuming its own honey as usual, and no doubt some from the outside. On the western coast, California seems entirely cleaned up and ready for the new crop, which ought to begin to come in soon. The states of Oregon and Washington, however, are not quite so favorable, some reporting as much as 50 to 90 per cent of the 1928 crop still left on hand. Taking it the country over, it would be the writer's estimate that there is not more than 10 per cent of the 1928 crop left on hand in the hands of the producers or of the cooperative organizations.

How Is the market? As usual, at this season of the year, there is no considerable activity at any point. However, only a very few localities report the market as being poor. The southeastern states do not seem to be moving their crop very fast and the demand in that territory is weaker than for several years past. For white honey, however, there seems to be at least a normal demand, if not quite a little better than normal.

How are bees wintering? Where wintering outdoors is a problem, the reports generally are that there is considerable doubt as to how bees are going to come through. From the Rocky Mountains eastward as far as New York state and north of the Ohio River, there has been an unusually long cold spell, with bees confined in most instances for a month or more. In our particular locality, the bees did not have a flight from Christmas week until February 17, a steady stretch of seven weeks of confinement. Where stores are of good quality there will probably be very little loss, but where the honey was of poor quality, bees are bound to suffer.

In the southern states, clear across from coast to coast, reports for wintering seem normal, but even as far south as Texas the opening spring flows have been delayed on account of too cool weather. Taking it all through, the prospects for wintering are not as good as a year ago throughout most of the country, due to the unusually long spell of cold weather.

Early spring prospects. Beginning with California, where the crop probably starts the earliest, reports come that bees are already working on rattle brush, but, as usual, prospects cannot be forecast until proper amount of rain is assured. The late rains are the ones that produce the crop. So far, only about ten inches of rain has fallen, and, in order to have good crops, a rainfall of fifteen inches is needed.

In Arizona the report comes that plants have suffered from drought and lack of moisture at the time of reporting, which makes a big question as to whether there will be a normal crop or not. Texas, on account of its size, has conflicting reports, but, in the main, prospects seem good. The rest of the southern states report all the way from extra good to fair, with better prospects than a year ago.

In the middle states, from Kansas and Nebraska eastward to New York state and north of the Ohio River, there has been a good covering of snow throughout the greater part of the winter. However, part of this has had a sheet of ice frozen into the vegetation, which renders the condition of the honey plants rather uncertain. The worst ice covering is in the states of Illinois, Iowa, Missouri, Indiana and Ohio. This sheet of ice, in the immediate locality of Hamilton, has been terrible, as the coating has been all the way from two inches to six inches in thickness and has covered practically the entire countryside. Condition of honey plants previous to the ice and snow was very good, and it will depend on how much harm the coating of ice has done as to what the prospects shall be.

In the northern states there seems to have been plenty of moisture during the fall months, thus putting the honey plants in good condition. The intermountain territory reports as a rule an abundance of rainfall during the fall months, with plenty of snow in the major portion of the territory. Taking it the country over, our opinion would be that honey plants are in far better shape than a year ago.

Conclusion. Reviewing the situation as a whole, we believe that, if conditions are normal from now until honeyflow time, there should be a possibility of a much heavier crop throughout the entire United States than for 1928.

BRAZOS VALLEY APIARIES
CAMERON, TEXAS

BEES AND QUEENS

BRAZOS VALLEY APIARIES
CAMERON, TEXAS

A strain of Three-band Italians with an unsurpassed record for honey gathering in all parts of the U. S. and Canada

Package bees, including young laying queens:

	100 or more	50 to 99	25 to 49	10 to 24	5 to 9	1 to 4
2-lb. -----	\$2.60 each	\$2.65 each	\$2.70 each	\$2.75 each	\$2.80 each	\$3.00 each
3-lb. -----	\$3.50 each	\$3.60 each	\$8.65 each	\$8.70 each	\$8.75 each	\$8.95 each

For fifteen years I have shipped bees and queens in large quantities to every section of the U. S. and Canada and have very nearly reached the 100 per cent mark in successful delivery. Old customers took three-fourths of my entire output in 1928. Health certificate and all necessary invoice papers with all shipments. There has never been a case of foulbrood in this county. All orders filled on date wanted.

Absolute full weight with young bees. Drones screened out. Safe delivery guaranteed. In case of loss or damage in transit, I will replace without grumbling. Orders booked with 10 per cent deposit, which reserves any shipping date you may select. All queens pure Three-banded Italians. Young and purely mated. Queens for packages shipped in queen cages among bees so each can be examined upon arrival.

You can pay more money but you can not get better bees or more honest service

H. E. GRAHAM, Cameron, Texas, P. O. Box 735

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 7c per word, with no discounts. No classified advertisements accepted for less than ten words. Count each initial or number as one word.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used bee-keeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied by a certificate of inspection from an authorized inspector.

BEES AND QUEENS

FOR SALE—Italian bees and queens. Nothing but the best queens; \$1.00 each, \$10.00 per dozen. One pound of bees with queen, \$2.10; two pounds of bees with queen, \$4.00. All charges paid to your P.O. Liberal discount on large orders. Graydon Bros., R. 4, Greenville, Ala.

FOR bees guaranteed to please, see display on page 151. N. B. Smith & Co., Calhoun, Ala.

PACKAGE BEES AND QUEENS—Shipped when you want them. Number packages limited. No disease. Book your order now. Two-pound package with queen, \$4.00. Extra pound bees \$1.00. Italian queens, untested, \$1.00. Ten or more packages or queens, 10 per cent discount. J. E. McVay, Jackson, Ala.

COMBLESS packages bees, shipped on sugar syrup with Italian queen. Two-pound package, \$3.50; ten or more, \$3.00 each. Three-pound package, \$4.25; ten or more, \$3.75 each. Health certificate attached. Safe arrival guaranteed. Ten per cent with order, balance before shipping. John A. Williams, Box 178, Oakdale, La.

PACKAGE BEES—Gentle, hardy northern. Write for reduced, bargain prices. Van's Honey Farms, Hebron, In.

TWO-FRAME NUCLEI Italian bees and young queen \$3.50, early spring delivery. Bees are state inspected. Health certificate furnished. J. G. Prosser, Fort Dodge, Iowa.

QUEENS—Our queens sure have "IT" when it comes to producing workers that make fine comb honey. Three-banded Italian and Caucasians, \$1.00 each; twelve for \$10.00. We pay postage. Safe arrival guaranteed. We are now booking orders for spring delivery. James G. Johnston, 99 Superior St., Sharon, Pa.

BRIGHT Italian queens, ones that are guaranteed to please you or your money refunded. Untested, any number, 7c each. Safe arrival guaranteed. Honorable Bee Company, Honorableville, Ala.

PACKAGE BEES—Three-banded Italians. If you want bees that are gentle to handle, our bees will please you. Young queens, no drones, half pound overweight in every package. Bees shipped in light, roomy cages. Syrup feeder in cage. Two pounds bees with laying queen, \$3.00; three pounds bees with laying queen, \$4.00; four pounds bees with laying queen, \$5.00. Remember, one two-pound package with queen without extra cost with every five packages we sell. State inspection certificate attached. Prompt delivery; satisfaction guaranteed. Send for free circular. Little River Apiaries, Box 83, Gause, Texas.

GERMAN BEE SHIPPER—Bees and queens in packages, leather-colored Italians. Two pounds bees and queen, \$3.00. Free—Two-pound package and queen with every five packages we sell. Health certificate with shipment. Safe arrival guaranteed. William Piefer, Gause, Texas.

FOR SALE—Roy high quality bees. For season 1929 offer as follows: Pure Italian bees and queens with leather color. I have adopted special package as a one-frame nuclei with two pounds of bees and the queen for \$3.50 each. Now for each additional pound of bees, \$1.00. Guarantee plenty of young brood and enough honey to transit same. I also guarantee safe arrival on all my bees, free from disease, and all lost will be replaced upon receipt of bad order report signed by the express agent. Orders are booked with 10 per cent down, balance fifteen days before shipment. Isaac Roy, Hessmer, La.

PACKAGES hybrid bees with Italian queens, 2½ lbs. \$3.00; quantities, \$2.80. Herron & Stone, Millerton, Okla.

TO my old and new customers throughout the 1929 season: I make a specialty of rearing good Italian queens of both the three-banded light color and the goldens. One select laying queen, \$1.25; six, \$6.00; twelve and up, 90c each. Special for early honey crop, can book 500 two-frame brood and honey nuclei with two pounds of bees and queen for \$4.25 each; three frames with three pounds of bees for \$4.75 each. Safe delivery guaranteed, with health certificate. References given. Member beekeepers' association. Victor Prevost, Mansura, La.

LISTEN—If you desire to purchase high grade Italian bees and queens, write The Carolina Bee Co. for circular and price list. W. O. Curtis, Manager, Graham, N. C.

\$5,000 REWARD—This sum will be paid our customers in 1929. Be prepared to share this by ordering your packages and queens to fill all your surplus equipment and bring all weak colonies up to full strength for the honeyflow. Write for circular and price list, also price in quantities. Safe arrival and satisfaction guaranteed. Health certificate with each shipment. This reward will be paid in increased surplus and profits. Do not delay preparing for the honey crop so that you can share it. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

FATHER COULOMBE APIARIES—Yellow Italian queens and bees. "St. Romain Honey Girl" strain; shipped combless with sugar syrup feed. Two pounds bees with queen, one to nine packages, \$3.25 each; ten or more, \$3.00 each. Three pounds of bees with queen, one to nine packages, \$4.25 each; ten or more, \$4.00 each. Queens \$1.00 each; dozen, \$11.00. No disease. State certificate with each shipment. Safe delivery and all losses replaced upon "bad order" express receipt, guaranteed. Orders booked without deposit. J. Lloyd St. Romain, Mgr., Montegut, P. O. Telegraph office, Houma, Louisiana.

WARD'S bright Italian queens \$1.00 each, \$10.00 dozen, May and June. Three-pound packages, \$4.25. C. W. Ward, LeRoy, Kansas, R. 1.

DIEMER QUEENS—Bright three-band Italians, before June 15, \$1.00 each; after June 15, 75 cents each. Mailed to you in my double-barrel introducing cage. Write for circular giving price of package bees. J. F. Diemer, Liberty, Mo.

IF you want bees that are gentle to handle, good honey gatherers and beautiful to look at, my strain of golden Italians will please you. Prices: Untested, \$1.05; six, \$5.50; twelve to forty-nine, 80 cents each; fifty or more, 75 cents each. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

CYPRIAN QUEENS—Untested, \$1.50 each. E. J. Vaught, 3435 Chestnut St., Oakland, Calif. All shipments by air mail starting about March 10.

THAGARD'S ITALIAN QUEENS—Bred from the very best imported stock. They are gentle, prolific and wonderful honey gatherers. Untested, \$1.00; 12, \$10.50; 100, \$70. V. R. Thagard Co., Greenville, Ala.

GOLDEN Italian queens producing golden bees very gentle, good honey gatherers. State inspected; satisfaction guaranteed. Tested, \$1.50; select tested, \$2.50; untested, about May, \$1.00; six for \$5.40; twelve or more, 80 cents each. G. T. Gaster, R. 2, Randleman, N. C.

ITALIAN QUEENS—Read my advertisement in January issue. Allen Latham, Norwichtown, Conn.

CHOICE queens by return mail. Three-banded Italian queens, each, 80c; tested, \$1.00 each. Jul. Buegeler, Alice, Texas.

PETERMAN'S select Italian queens, also package bees. Queens: 1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00; 50 or 100, 75c each. H. Peterman, Lathrop, Calif.

ITALIAN BEES AND QUEENS—Two-pound package without queen, \$3.00. Untested queen, \$1.00; tested, \$1.50. Add price of queen wanted. Safe arrival after May 10. Birdie M. Hartlie, 924 Pleasant Street, Reynoldsville, Pa.

LEATHER COLORED ITALIAN QUEENS—\$2.00; after June 1, \$1.00. Tested, \$2.00. A. W. Yates, 15 Chapman St. Hartford, Conn.

OUR circular tells why we have no drones in our package bees. No queen except one wanted, and very few old bees. An ideal package and at prices in line. Write for them. R. V. Stearns, Brady, Texas.

GOLDEN Italian queens, untested, \$1.00 each; twelve, \$9.00; six, \$5.00. Breeders, \$5.00 to \$10.00. Tested, \$2.50 each. Thirty seconds' a golden breeder, and they stand second to none. J. B. Brockwell, Barnets, Vn.

CAUCASIANS—If they are Quinn's, they are pure; they hold the world's record for both comb and extracted honey. Most gentle of all bees. Carniolans in their purity, Italians that are bred, not merely raised. Prices: Untested, \$1.50; select untested, \$2.00. Tested, \$2.50; select tested, \$3.00. Ten per cent off on lots of one dozen. Special prices on lots of 100, 500, 1000. Are you interested in a long tongue reach? If so, try Quinn's bees. Charles W. Quinn, C. E., the breeder of queens, Box 14, Englewood, Fla.

GOLDEN ITALIAN QUEENS—Producing large beautiful bees. Solid yellow to tip. Package bees and nuclei. Circular free. Dr. White Bee Co., Sandia, Texas.

GOLDEN Italian queens and nuclei (or package bees) for 1929, the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, \$1.00 each; 6, \$5.00; 12, \$10.00; 100, \$75.00. Tested, \$2.00 each. Two-frame nuclei or two-pound package with queen, \$4.50 each; ten or more, \$4.00 each. Safe arrival guaranteed. Health certificate furnished. E. F. Day, Honorableville, Ala.

QUEENS and Bees for 1929. We can supply any style package. Not a single dissatisfied customer. Try our popular special, two frames of brood, four pounds bees and young queen, \$6.50; five for \$30.00. Prompt service and satisfaction. The Peerless Apiares, Box 54, Marksville, La.

ITALIAN queens and package bees for spring delivery. Get our prices and a free package. We sell bees according to the price of honey. We guarantee safe delivery and satisfaction. Health certificate with each shipment. The Mangham Apiares Co., Mangham, La.

MR. BEEKEEPER—Before placing your order for bees, write me and get my prices. I have had nearly forty years' experience as a beekeeper and I believe I can give you as good service as anyone else. Everything I send out absolutely guaranteed; all losses, when accompanied by a bad order receipt from express agent, made good at once. Write and get my prices before placing your order elsewhere.

O. P. Hendrix, West Point, Miss.

BEES AND QUEENS—Golden and three-banded Italians, also Carniolans, bred in yards four or five miles apart. Satisfaction guaranteed. I began advertising bees and queens in old American Bee Journal thirty-seven years ago. Write for price list. C. B. Bankston, Buffalo, Texas, P. O. 65.

HIGHEST grade Italian queens—Tested, \$1.50; untested, 75 cents. Package bees, one pound, \$1.50; two pounds, \$2.50; three pounds, \$3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.

T. L. Davis, Buffalo, Leon Co., Texas.

FOR SALE—Two-pound bees, young three-banded Italian queen, \$3.00. Health certificate with each shipment. Satisfaction guaranteed. Write for full particulars. J. L. Leath, Corinth, Miss.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, \$1.50; twelve, \$14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR packages and nuclei, early delivery,
write Elder Curd Walker, proprietor of
the Vidalia Apriaries, Vidalia, Ga.

FOR SALE

FOR SALE—Bulk comb and extracted
honey; clover and light amber. Best quality.
Sample 10c. Fred E. Hyde, New Can-

PIARY FOR SALE—Twelve colonies of
Italian bees in ten-frame hives, with
equipment enough to run forty colonies. No
reasonable offer refused. Rev. Willard J.
Perry, 1422 Concordia Ave., Milwaukee, Wis.

FOR SALE—Fifty colonies of Italians in
ten-frame hives; combs drawn from full
sheet foundation. Price \$10.00, three for
\$25.00, f. o. b. Bayard, Iowa. Bert Gander.

FOR SALE—450 colonies bees and equip-
ment for comb, extracted or chunk honey,
all in good standard eight-frame hives. Lo-

cated in heart of sweet clover district of

San Luis Valley of Colorado. L. W. How-

sam, La Jara, Colo.

FOR SALE—Bees and equipment; good con-

dition, any number. Guaranteed disease free.

T. T. Basham, R. 5, Kearney, Neb.

FOR SALE—Golden Italian queens. Only
one grade, select. Safe arrival and satis-

faction guaranteed. Untested, one, \$1.00;

six, \$5.00; twelve, \$10.00. E. A. Simmons

Apriaries, Greenville, Ala.

FOR SALE—Hatching eggs from Park's
bred to lay Barred Rocks, Cream A.

matting; 15 eggs \$2.50. O. W. Bedell, Earl-

vile, N. Y.

FOR SALE—Foundation: One pound me-
dium brood, 7½c; five pounds medium
brood, \$3.40. One pound thin surplus, 83c;
five pounds thin surplus, \$3.85. One one-
story, 10-frame hive, \$2.50; five one-story,
ten-frame hives, \$10.00. One ten-frame
comb honey super, \$1.05; five ten-frame
comb honey supers, \$3.60. One hundred
Hoffman frames, \$5.25. Five hundred No. 1
sections, 4½x1½, \$4.58. Write for 1929
catalogue and save money. F. J. Rettig &
Sons, Wabash, Ind.

180 COLONIES disease free Italians. Good
wholesale business. House and city lots.
For sale in part or whole. Write for full
detailed information. Sherman Whitney,
Puyallup, Wash.

60-LB. CANS—Bargain. Will sell first
comers used good 60-lb. cans, cased, at
special price 25c per case two cans, for
prompt shipment, as higher price later on
and pays to take now. Arthur H. Hoffman,
Inc., Richmond Hill, N. Y.

NUCLEUS FOR SALE—Bees on combs
stand transportation better; easily trans-
ferred to hive and build up to colonies
quickly. Package buyers will not find bet-
ter bargains. Our quality and service have
no equal. Write us for prices B-4-U buy.
Crenshaw County Apriaries, Rutledge, Ala.

HONEY AND BEESWAX

CARLOAD white extracted honey wanted.
Old Taylor Honey Co., Chandler, Okla.

FOR SALE—Extracted honey; white clover
and basswood. Nuel L. Dunn, Kent City,
Mich.

WILL EXCHANGE package bees for light
honey. Van's Honey Farms, Hebron, Ind.

WHITE CLOVER in 2-60, 10e pound. Buck-
wheat and clover blend, 2-60, 7½c. One-
pound sample, 25c in stamps. F. W. Sum-
merfield, Grand Rapids, Ohio.

CLOVER - BUCKWHEAT blend extracted
honey, 8c pound by case. D. H. Morris,
Swanton, Ohio.

WANTED—Dark honey for bakery. Edw.
Klein, Gurnee, Ill.

WHITE CLOVER extracted honey in new
60-pound cans. Edwin Krinke, Bay City,
Wis.

BLACK HILLS fancy table honey from
sweet clover and alfalfa, in car lots and
smaller quantities. Write for prices. Ernest
W. Fox, Fruitdale, S. Dak.

HONEY FOR SALE—Best quality, lowest
prices. D. Steengrafe, 116 Broad Street,
New York.

"CLOVER HONEY—Comb and extracted.
Dr. E. Kohn & Sons, Grover Hill, Ohio."

HONEY WANTED—Small or large lots.
Send samples of grades, stating quanti-
ties, and price wanted. Also buy white
comb. Arthur H. Hoffman, Inc., Richmond
Hill, N. Y.

FOR SALE—Clover honey. Lewis Klatty,
Carsonville, Mich.

PURE clover honey and pure autumn honey
in pails and 60-pound cans. Descriptive
price list free. F. A. Snell, Milledgeville, Ill.

STURDEVANT'S CLOVER HONEY — St.
Paul, Neb. Any quantity.

WANTED—Honey in trade for chicks; 10c
pound in pails. Ames Hatchery, Deerfield,
Wisconsin.

HONEY FOR SALE—Any kind, any quan-
tity. The John G. Paton Co.,
217 Broadway, New York.

HONEY FOR EVERY PURPOSE—We have
it in any amount; light amber and white
clover, basswood, sweet clover, buckwheat.
Write us what you need and ask for prices.
A. I. Root Company of Chicago, 224-230
West Huron Street, Chicago, Illinois.

FOR SALE—Light amber honey in 60-lb.
cans; clover and buckwheat mixed. J. F.
Moore, Tiffin, Ohio.

WANTED—White clover extracted honey.
Send sample and your lowest price. A. L.
Haenaeoth, 4161 Lincoln Ave., Chicago, Ill.

HONEY FOR SALE—All grades, any quan-
tity. H. & S. Honey and Wax Company,
Inc., 265 Greenwich St., New York City.

NEW CROP shallow frame comb honey, also
section honey; nice white stock, securely
packed, available for shipment now. Col-
rado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE—White and amber
honey in 60-lb., 10-lb. and 5-lb. tins.
Write for prices. Dadant & Sons, Hamilton, Illinois.

FANCY white clover extracted honey, any
sizes. Prices and samples on request.
Kalona Honey Company, Kalona, Iowa.

SHALLOW frame white comb honey and
white extracted honey. The Colorado Honey Prod. Ass'n,
Denver, Colo.

FOR SALE—Northern white, extracted and
comb honey. M. W. Cousineau, Moorhead, Minn.

FOR SALE—Our own crop white clover
and amber fall honey in barrels and cans.
State quantity wanted and we will quote
prices. Samples on request. Dadant & Sons, Hamilton, Illinois.

WANTED—Light honey. Mail sample. Van's
Honey Farms, Hebron, Ind.

FOR SALE—Buckwheat comb and extracted.
Write H. G. Quirin, Bellevue, Ohio.

SUPPLIES

FOR SALE—Seventy ten-frame hive bodies;
tops, bottoms, extractor, tank; also lots
of eight-frame supplies, cheap. Write or
come and look it over. Ben Steen, Manning,
Iowa.

FOR SALE—100 used ten-frame hives, ex-
cluders, etc. Herbert Kietzer, Vernon
Center, Minn.

FOR SALE—To close out my entire yard of
supplies, I offer several hundred eight-
frame L. bodies, covers, bottoms, excluders,
etc., at a bargain. State number of each
you can use. (Located near Chicago.) E. C.
Pike, St. Charles, Ill.

FOR SALE—Foundation, bee brushes, comb
honey cartons, feeders, nailed and painted
bodies, bottoms, covers, and bodies, veils,
sections, a big assortment of frames, ex-
cluders, comb and extracting supers k. d.,
and many other items in good, usable condition.
Reason for selling, items no longer listed
in our catalog. Prices the lowest anywhere
for the value. You can address G. B.
Lewis Company, at Watertown, Wis., Albany,
N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

WILL SELL CHEAP—Empty 60-lb. cans,
two in a case, good condition. Charles
Kohr, 9245 S. Western Ave., Chicago, Ill.

ROBINSON'S comb foundation will please
the bees, and the price will please the
beekeeper. Wax worked at lowest rates.
E. S. Robinson, Mayville, Chau. Co., N. Y.

SAGGED COMBS are result of slackened
wires caused by wires cutting soft wood
of frames. Use metal eyelets. Per 1,000,
60c. Handy tool for inserting eyelets, 25c.
Postage 3c per 1,000.
Superior Honey Co., Ogden, Utah.

BEST QUALITY bee supplies, attractive
prices, prompt shipment. Illustrated cata-
log on request. We buy beeswax at all
times and remit promptly.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

"BEEWARE" and Dadant's Wired Founda-
tion for the Northwest. Catalog prices.
F. O. B. Fromberg, Montana. Beeswax
wanted. Write for prices.
B. F. Smith, Jr., Fromberg, Mont.

MISCELLANEOUS

FINE irrigated land to trade for bees. O. J.
Reid, McNary, Texas.

BRITISH wallflower seeds, mixed colors,
25c packets, post free. E. & D. Bathurst,
Beekeepers, Chipperfield, Herts, England.

GLADIOLI—100 mixed sizes extra choice
bulbs. Phipps, the wonder glad, Bennet,
Douglas and other top-notchers in this col-
lection for \$1.50. If you send me the name
and address of your flower loving friends, I
will enclose in your order something extra
you will like. Descriptive bulb list free.
Harold W. Lauber, Wauseon, Ohio.

BEE BOOKS—Old wanted. Write to Fran-
cis Jager, St. Bonifacius, Minn.

FLORIDA ORANGES—Box containing 80
sweet, juicy oranges and 30 grapefruit,
express paid to your home, \$4.75. Address
Russell's Groves, Box 282, Tampa, Fla.

MODERN bungalow and one acre of land
with several colonies of bees, honey house
and new equipment, in village of Maryfield;
situated in good sweet clover district; big
yields of honey and good prices. Apply
owner, R. D. Sprague, Maryfield, Sask.,
Canada.

FREE—One gallon white paint with \$25
order for Root bee supplies at regular
catalog price. March only; cash with or-
der. Mail coupon today. Free: One gallon
white paint with \$30 order. A. V. Small,
Augusta, Kansas.

WILL EXCHANGE—New five-tube radio,
also violin, for good honey. Write Leo
Bentz, Woodstock, Ill.

FARM SEEDS FOR SALE—All leading va-
rieties of high grade seeds. Samples and
prices free. F. A. Snell, Milledgeville, Carroll
County, Illinois.

IMPROVE conditions for bees; grow vitex
along fence rows, lawns and waste places.
Grows throughout the United States; con-
tinuous blooming from May to October;
grows rapidly. Price \$1.50 for ounce seed.
Smaller amounts proportionate price.
Joe Stallsmith, Galena, Kansas.

MAKE queen introduction sure. One Safi
cage by mail, 25c; 5 for \$1.00.
Allen Latham, Norwichtown, Conn.

GEORGE S. DEMUTH is editor-in-chief of
Gleanings in Bee Culture. Its field editor
is E. R. Root. This means a most carefully
edited, able bee journal. Subscription price,
two years for \$1.00. Write for sample copy.
Gleanings in Bee Culture, Medina, Ohio.

WESTERN HONEY BEE 2823 E. 4th St.,
Los Angeles, Calif., published by Western
beekeepers, where commercial honey produc-
tion is farther advanced than in any other
section of the world. \$1.00 per year. Send
for sample copy.

FOR SALE—We are constantly accumu-
lating bee supplies, slightly shopworn;
odd sized, surpluses, etc., which we desire
to dispose of and on which we can quote
you bargain prices. Write for complete list
of our bargain material. We can save you
money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

FIRE—No more fires. New method of rendering wax. Capping melter; liquefies honey and bee feeder. Send for circular. George Pratt, Topeka, Kans., 2235 Penn Ave.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list. American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

WANTED

WANTED—Second-hand foundation dress. Harold Camerling, 1507 N. McLean St., Bloomington, Ill.

YOUNG man 23 wants position as helper, West or Northwest. E. J. Fitzell, 1331 M. Eureka, Calif.

WANTED—Single, experienced bee man, to help small farm and bees. Ford car and board furnished. Charles M. Boothby, Anthon, Iowa.

SITUATION WANTED—With experienced beekeeper for coming season. No bad habits. Odie Singleton, Cedar Grove, Mo.

WANT TO BUY—Used bee supplies, entire apiaries. Timm Bros., Bennington, Neb.

EXPERIENCED and successful wholesale honey raiser wants partner. J. Bennett, Glenbar, Ariz.

WANTED—Eight-frame extractor, good as new or no trade. Charles M. Boothby, Anthon, Iowa.

WANTED—By experienced man, to buy or lease apiary of 200 colonies of bees with option to buy, in Illinois, Wisconsin or Iowa. Address S. W. White, 722 S. Eleventh St., Muskogee, Okla.

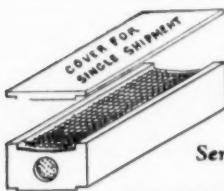
WORK WANTED—By one or two single men, in comb and extracted honey production; one experienced and one good helper. Care G. Booth, 1231 Wilmington Ave., Salt Lake City, Utah.

WILL give experience and fair pay to active young man for work in extensive, well equipped apiaries producing extracted honey. State age, height, weight, experience, nationality. Permanent employment with good pay to right man. Morley Pettit, Georgetown, Ont.

WANTED—One experienced beekeeper and one helper for 1929 season. Give age, weight, experience, and salary expected. W. J. Forehand & Sons, Fort Deposit, Ala.

RABBITS

PEDIGREED Chinchilla rabbits. We have what you want. A. Seymour, Markestan, R. 5, Wis.



Send for circular or samples

A. B. PINARD,
810 Auzerais Ave., San Jose, Calif.

PACKAGE BEES AND QUEENS

That Give Satisfaction

"Business goes where it is invited and lingers where it is well treated"

We Offer
Prompt Service
Safe Delivery
Full Weight
Droneless Packages

Satisfy yourself by an investigation.

Louisiana Southern Bee Farm
Route 2 Baton Rouge, La.

Meeting and Events

(Continued from page 141)

He pleaded against the practice of price cutting, saying that it was embarrassing to their firm to be approached by price cutters, because it rendered the market unstable. The same argument, he said, was applicable to price boosting in case of a scarcity. He stated that his organization was progressing very favorably and that they were encouraged by the reception that was being given to their product.

On the evening of the 8th a banquet was held, at which 150 were in attendance. This was presided

over by our good friend "Tommy" Atkins, of the G. B. Lewis Company, as toastmaster, and he as usual gave those in attendance a treat with appropriate stories.

The records showed that 169 persons registered for the meeting, although quite a number attended without registering.

On Saturday, February 9, the business meeting was held and the following officers were elected for the ensuing year:

President, Dr. Tanquary.

Vice-president, Frank Rauchfuss. Secretary and treasurer, J. A. Munro.

Director-at-large, Dr. Tanquary; Southwest district, L. Burleson; Southeast district, M. C. Berry; Northeast district, James Gwin; Northwest district, Frank Rauchfuss.

Beekeeping Short Course

Two successful short courses in beekeeping were held in Saskatchewan this winter, one at Saskatoon, from January 29 to February 1, at the University of Saskatchewan, and one at the Parliament Building, Regina, from February 4 to 7. A total of forty-six students registered for the two courses. Dr. Patterson, of the University, was in charge of the Saskatoon course, assisted by C. B. Gooderham, Dominion apiarist, and R. M. Pugh, provincial apiarist for Saskatchewan. Mr. Pugh was in charge of the Regina course, assisted by Mr. Gooderham; L. T. Floyd, provincial apiarist for Manitoba, and G. L. Jarvis, of the Ruddy Manufacturing Company.

On February 7 the Saskatchewan Beekeepers' Association held their annual meeting at Regina and elected the following officers: John Hubbard, president; Thomas H. Mack, vice-president, and R. M. Pugh, secretary-treasurer.

A Good Meeting at Fargo

The annual winter meeting and short course of the North Dakota beekeepers was held at the State College of Agriculture at Fargo, January 15 and 16. Somehow, most of the larger beekeepers in North Dakota seem to get out to these meetings, perhaps a little better than in most of the other states. It may be because it is a new country and beekeeping is on the up-grade, the interest is keen. In the older regions smaller beekeepers turn out and the big ones stay home.

The reports of those who have joined the Mountain States Association indicate that the beekeepers throughout the Red River Valley of North Dakota are entirely satisfied

SAVE THAT COLONY

September Raised Queens \$1.00 each

Good untested \$1.00 each; 10 for 85c each; 100 for 75c each Ready April 1.

D. W. HOWELL, Shellman, Georgia

It will pay you to get our

BEES and QUEENS

You get no drones, no queen but the one wanted, and young bees—at no advance in price. Our circular tells how.

Write Us

R. V. STEARNS

Brady, Texas



CAUCASIANS CARNIOLANS PACKAGE BEES

Beekeepers! Try our thrifty, hardy Caucasian or Carniolan queens and bees for 1929. You will find them unequalled for honey production. Unested queens, \$1.30 each; 6, \$7.00; 12 or more, \$1.00 each. Two-pound packages, 1 to 5, \$4.00 each; 5 to 20, \$3.25 each; 20 or more, \$3.00 each. Queens included. No disease.

Write for free circular

W. A. HOLMBERG, Turlock, California

WE ARE BOOKING ORDERS

For Bees and Queens

April and May deliveries. Health certificate with each shipment.

3 lb. package with queen	\$3.50
2 " " " "	\$2.90
3 frame nuclei with queen	\$4.00
2 " " " "	\$3.50

Evangeline Apiaries
MORGAN CITY, LA.

with the decision which they made last year to join the western association. Everyone reported easier disposition of crop and general relief from the burden of marketing. This is always the bugbear of a large producer, who has about as much as he can do anyway to produce the crop and take care of his bees without adding the job of selling.

There was a great deal of local talent on the program. C. S. Engle gave a wonderful talk on bee cellars and W. O. Victor an excellent talk on honeyflow management. Our associate editor, G. H. Cale, tried to bring in some figures from the outside relative to the market and apiary practices.

C. L. Corkins, of the University of Wyoming, Laramie, gave the outstanding talks of the meeting. Beekeepers were particularly interested in his researches in wintering, which are bringing to light new facts which look quite revolutionary to us. Corkins is to be commended for his tireless efforts in his experiments. We hope later to give a report of what he said.

Charles Hausman was elected president and J. A. Munro was retained as secretary.

President Remington, retired, was given a new hat, featured as a "crown in reward for his labors."

Correction in Tracy Ice Cream Article

In the February number the lead article was "The Use of Honey in Ice Cream," by P. H. Tracy, of the Dairy Department, University of Illinois. A serious error has been called to our attention in the paragraph giving the total solids determined on three lots of honey, where it reads, "the total solids determinations on three lots of honey were 82.34, 76.65 and 78.9 per cent, respectively; whereas the sweetness was found to be about 7 per cent of that of sugar." This is, of course, an error. It should have been 75 per cent. It should have read, "whereas the sweetness was found to be about 75 per cent of that of sugar."

Also in the table giving the comparison of different honeys in ice creams, the sample given as Dadant No. 1 was white clover, Dadant No. 2 was sweet clover, and the sample given as "University of Illinois" was clover and heartsease mixed. The kind of honey is of importance in the discussion.

Those who are interested in the results obtained by Professor Tracy will note these corrections.



Dependable Service On Standard Sizes

Our fluted honey jars are made as per specifications of Standardization Committee of the American Honey Producers' League

Distributed by

Dadant & Sons, Hamilton, Illinois
and
G. B. Lewis Co., Watertown, Wis.

G. B. LEWIS CO.,
1921 E. Fourth St., Sioux City, Iowa

G. B. LEWIS CO.,
10 Tivoli St., Albany, N. Y.

G. B. LEWIS CO.,
1304 Main St., Lynchburg, Va.

G. B. LEWIS CO.,
318 E. Broad St., Texarkana, Ark.

Hart Glass Mfg. Company Dunkirk, Indiana

CANADIAN BEEKEEPERS

Chrysler's Process Foundation

In E-V-E-R-Y TEST the V-E-R-Y BEST
Made of pure Beeswax, Perfect Milling and Refining

CHRYSLER'S Lock-End, End Spacing Top Bar BROOD FRAMES are the strongest and more quickly assembled than any frame made.
Send for our Catalogue.

W. A. CHRYSLER & SON, Chatham, Ont., Canada

KNIGHT

PAYS THE TRANSPORTATION CHARGES PACKAGE BEES AND QUEENS

Three-banded, leather-colored Italians, the best honey gatherers, gentle and prolific. Shipped on the day you name, on sugar syrup. Young baby bees. Overweight to insure full weight at destination. Shipment of two-pound packages sent a customer in Goodlands, Manitoba last season averaged over 250 pounds honey each.

DELIVERED PRICES

PARCEL POST OR PREPAID EXPRESS

1-lb. package, including select young laying queen, \$3.00
2-lb. package, including select young laying queen, 4.25
3-lb. package, including select young laying queen, 5.25

Ten packages, either size, 25c less each. Twenty packages, either size, 35c less each. Write for large quantity prices. Queenless packages \$1.00 less.

QUEEN PRICES

Select (one grade only): One, \$1.00; ten, \$9.00; twenty-five or more, 80c each before June 1.

Tested queens, last fall rearing, \$1.50 each.

All queens guaranteed mated pure

Should you find a queenless colony this spring, send to me for a young queen to save them. I will not disappoint you. Excellent reports of my queens are received from all parts of the United States and Canada. Safe arrival bees and queens, and satisfaction guaranteed. Furthermore, I make good my guarantee. You are safe in sending money to me. Inquiry as to my business and responsibility is invited. No disease. Health certificate and all necessary papers accompany shipment. Shipping begins about April 1.

JASPER KNIGHT

HAYNEVILLE, ALABAMA

THE NORMA'S SPECIAL

GOLDEN THREE-BANDED ITALIANS QUEENS AND BEES

Two frames of brood and honey, three pounds of bees and a queen introduced for \$5.00 each.

Two-pound packages with select untested queen—1 to 9, \$3.40; 10 to 24, \$3.25; 25 or more, \$3.00.

Three-pound packages—1 to 9, \$4.25; 10 to 24, \$4.00; 25 or more, \$3.75.

Four-pound packages—1 to 9, \$5.25; 10 to 24, \$5.00; 25 or more, \$4.75.

Two and three frames nuclei with select untested queens same prices as two- and three-pound packages.

All packages bees and nuclei are shipped on standard Hoffman frame of brood and enough honey for feed in transit. A health certificate with each shipment. Shipping season starts April 5. Orders booked with 10 per cent down, balance 10 days before shipment. All loss will be immediately replaced upon receipt of bad order report signed by express agent.

Reference: People's Savings Bank and Trust Company, Hessmer, La.

Address

THE NORMA'S APIARIES

REV. J. L. MAHUSSIER, Prop.,
HESSMER, LA.

BEES CHEAP

Our prices are cheaper than ever before, but our bees and queens are the highest quality possible.

1500 big hives of bees
4500 queen-producing hives to draw from

PACKAGE BEES

Two-pound package with queen-----\$3.00

Three-pound package with queen-----4.00

Discount given on quantity orders

QUEENS

1	10	50	100	1000	
Untested	\$1.00	\$.85	\$.80	\$.75	\$.70

Tested, 50c more per queen

Guarantee complete satisfaction or money refunded.

Orders booked without deposit

CITRONELLE BEE CO.

CITRONELLE, ALABAMA

GLADIOLI GIVEN FREE

18 LE MARECHAL FOCH BULBS

for each Subscription to the Journal that you get for us.

This spring when you long to have a flower garden of your own you will want to grow some gladioli.



You can get these bulbs at no cost to you by sending us new subscriptions to the Journal. For every three new subscriptions you get we will send 60 of these bulbs. They are sent direct from the grower at Calcium, New York, to you.

American Bee Journal

HAMILTON, ILLINOIS